OWNERSHIP STRUCTURE, CORPORATE GOVERNANCE, CORPORATE PERFORMANCE AND EGYPTIAN REVOLUTION: EVIDENCE FROM AN EMERGING MARKET

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Abstract

A crucial question is investigated in the present work, namely: in which way has the 2011 Egyptian Revolution affected, economically speaking, firm performance, ownership structure types, and corporate governance mechanisms? Ownership structure and corporate governance (hereafter referred to as CG) are two of the most important variables affecting firm performance. Accordingly, this study shows how the Revolution impacted the relationship between CG mechanisms and firm performance, as well as that between ownership structure types and firm performance. Furthermore, it studies the extent to which Egyptian listed firms which voluntarily comply with and disclose Egyptian CG practices have been affected by the Revolution of 2011. This essential question is answered using a sample of 101 (992 observations) non-financial listed Egyptian companies for the period spanning 2008-2017 using agency theory and resource dependence theory.

The results revealed that the Revolution has had a negative and significant impact on firms' performance measured by ROA, ROE, and Tobin's Q. Similarly, the Revolution has had a negative effect on the relationship between ownership structure types and firm performance, but a positive impact on the relationship between CG and firm performance. These findings shed light on the important role of CG in helping to overcome the negative effect of the Revolution and putting an end to companies' internal drawbacks. Overall, the results are consistent with the predictions of agency theory and resource dependence theory. The thesis' results have important implications for investors, analysts, regulators, policymakers, and managers who are interested in firm performance and who wish to overcome the economic consequences of the Egyptian Revolution of 2011. Said implications include highlighting the importance of the CG practices to improve firm performance in Egypt by enhancing the current disclosure of CG practices and the CG annual reports to support future empirical studies. Moreover, the findings are useful for researchers investigating how the Revolution has affected the ownership structure of Egyptian firms.

The thesis' main contribution is to study the economic impact of the Egyptian Revolution on Egyptian firms. This contribution can be explained and divided into the following key parts. First, this thesis illustrates the impact of the Revolution on the relationship between firms' internal CG mechanisms and firm performance, while at the same time highlighting the importance of the internal CG mechanisms. Both of the above-mentioned theories are used, as the economic impact is a crucial question, meaning that different theories are needed to answer and support it. Furthermore, the study provides evidence related to the aforementioned economic impact in a voluntary CG setting and a "comply or explain" CG code together in Egypt. Second, the Revolution's impact on the relationship between ownership structure types and firm performance is examined. Said examination shows the importance of having certain types of ownership in order to recover from such an economic impact. The thesis advances knowledge of the Revolution's impact by studying how a revolution influences financial performance. Third, and finally, in order to ensure that the findings are robust, the present thesis employs a number of econometric methods that deal with different types of endogeneities and lagged effect, namely the system generalized method of moments (SGMM) and principal component analysis (PCA). The purpose of this is to ascertain the exact effect of the Revolution on the mentioned relationships.

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List of Abbreviations

AIM	Alternative Investment Market
BD	Board Diversity
BI	Board Independence
BOD	Board of Directors
BOWN	Block Ownership
BS	Board Size
CD	CEO Duality
CDL	Central Depository Law
CEO	Chief Executive Officer
CG	Corporate Governance
CMA	Capital Market Authority
CML	Capital Market Law
ε	Error Term
ECCG	Egyptian Code of Corporate Governance
EEA	European Economic Area
EGX	Egyptian Stock Exchange
EIOD	Egyptian Institute of Directors
ETTA	Egyptian Travel Agents Association
EU	European Union
FP	Firm Performance
FRC	Financial Reporting Council
FTSE	Financial Times Stock Exchange
GAFI	General Authority for Investment and Free Zones
GOWN	Government/ State Ownership
ICB	Industry Classification Benchmark
ICI	Chief Executive of ICI
IL	Investment Law
IMF	International Monetary Fund
IOWN	Institutional Ownership
IPO	Initial Public Offering
LEV	Leverage

LSE	London Stock Exchange
MOI	Ministry of Investment
MOWN	Managerial/Director Ownership
MV	Market Value
MVE	Market Value of Equity
NACD	National Association of Corporate Directors
NYSE	New York Stock Exchange
OECD	Organization of Economic Cooperation and Development
OLS	Ordinary Least Square
P/BV	Price-To-Book Ratio
PCA	Principal Component Analysis
P/E	Price-Earnings Ratio
PIES	Public Interest
PLCS	Publicly Listed Companies
QFIIS	Qualified Foreign Institutional Investors
RDT	Resource Dependence Theory
ROA	Return on Assets
ROE	Return on Equity
ROSC	Report on The Observance of Standards and Codes
SB	Supervisory Board
SD	Standard Deviation
SGMM	System Generalized Method of Moments
SIZE	Firm Size
SOES	State-Owned Enterprises
TA	Total Assets
VIF	Variance Inflation Factors
WGI	Worldwide Governance Indicators

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Chapter 1: Introduction

1.1 Introduction

Studies published during the past two decades agree that ownership structure and CG have important implications for firm performance and may point to certain conclusions for a firm (Jaskiewicz, Block, Combs, & Miller, 2017; Kumar & Alessandro, 2015; Lemmon & Lins, 2003; Perrini, Rossi, & Rovetta, 2008; Tam & Tan, 2007; Visintin, Pittino, & Minichilli, 2017). The subject is an ongoing debate and a worthy motivation to study the relationships among the roles of ownership structure types, different CG variables, and firm performance in Egypt, the latter of which is an emerging market influenced by the underlying facts of the Egyptian Revolution. The thesis uses a sample of 101 firms (consisting of 992 observations), including non-financial Egyptian listed companies, for the period spanning 2008-2017.

Findings of studies in developed countries, as well as emerging and developing markets, have shown how ownership structure and who owns the firm's equities affect firm performance (Abdel Shahid, 2003; Bolbol, Fatheldin, & Omran, 2003; Xu & Wang, 1997). This explains why the present thesis will examine the above-mentioned relationship in depth, and particularly the relationship between the different ownership structure types and corporate performance. The other group of variables consists of the CG variables, which must be covered in order to study firm performance implications. CG is an extremely fascinating, developing, changing, and interesting topic and has many definitions which qualify it as a set of mechanisms relevant to economic efficiency, minimising problems of agency such as excessive consumption and underinvestment decisions. It is also defined as a structure that includes rules, relationships, systems, and processes supporting corporation authority (Council, 2014). In order to explain and link the variables and the results, certain theories are used to identify the relationship between the above-mentioned variables. This shows the importance of ownership structure types and CG variables for firm performance efficiency, which is very interesting and vital for an in-depth study,

especially concerning the Egyptian Revolution. This chapter presents the research motivation, aim, objectives, and research contribution.

1.2 Research Motivation

Several motivations for this research spring from the literature, which contains an important gap that must be filled. Egypt has political and economic environments which are different from those of other countries. Said environments usually suffer from closed/family companies, state ownership of companies, weak legal system, and weak institutions (Mensah, 2002; Young et al., 2008). These characteristics support the importance of this thesis, and will help to apply the results to a wide range of countries and give Egypt a unique place among the countries of the Mediterranean basin.

First, since the work of Berle and Means (1932), the relationships among ownership structure, CG, and firm performance have spurred a debate in the corporate finance literature dedicated to explaining why these relationships are important in considering the effect of the Egyptian Revolution. Second, it is important to concentrate on the effect of ownership structure, firm performance, and CG on companies after a revolution similar to the 2011 Egypt example. Emphasising the fact that after any regime change politicians and citizens set their focus on public and governmental corruption and side-line attention to companies and corporate obstacles, this thesis concentrates on Egyptian companies and how their performance changed after the Revolution. There is further need for detailed study at the corporation level, showing the Revolution's effect on Egyptian companies' performance, different types of ownership, and CG variables. Taking this motivation into account gives the thesis the advantage of filling the existing research gap, explained in the following sections concerning the aim and objectives and the research contribution.

1.3 Research Aim and Objectives

1.3.1 Research Aim

The thesis aims to study the Egyptian Revolution's economic impact on the CG internal mechanisms, ownership structure, and firm performance, filling an existing gap and creating an important advantage in this regard. The study seeks to illustrate the pre- and post-Revolution harmful effects and enhancement, presenting new evidence regarding financial performance's relationship with ownership structures, and showing that some types of ownership structure are more important than others when it comes to recovering from economic impacts. This work can also enhance understanding of poor performance or government intervention. The researcher believes that, to date, the present thesis is the only study to cover these economic impacts of the Revolution alongside the above-mentioned variables, with respect to the listed Egyptian corporations.

1.3.2 Research Objectives

The aim of the thesis is pursued via the following objectives:

- To investigate whether the economic impact of the Revolution has had an effect on CG with reference to the financial literature by examining board size, CEO duality, board independence, and board diversity.
- To investigate whether the relationship between ownership structure types and firm performance has been affected by the impact of the Revolution.
- To identify the differences between pre- and post-Revolution weaknesses and enhancement by using panel data for the years spanning 2008-2017 for a 101-strong sample (992 observations) of companies listed in the EGX.
- To analyse and discover how different industry types can affect Egyptian firms and how said firms have been impacted by the Revolution in Egypt.
- To reach an updated conclusion regarding how to enhance corporate performance by studying different theories, such as agency theory and resource dependence theory.

- To examine ownership structure types in order to conclude how having certain types of ownership structure may be more important than having others when it comes to recovering from economic impacts. These types include block ownership, government/state ownership, institutional ownership, and managerial/director ownership.

1.4 Research Contribution

To the best of the author's knowledge, no prior study has, theoretically or empirically, examined the economic impact of the Egyptian Revolution on Egyptian firms. Therefore, the present work contributes to the existing literature on firm performance by analysing the impact of the Revolution, and particularly the economic effect; indeed, the Revolution is not reviewed strictly as a political event, but is narrowed in order to cover only how companies have been affected and changed in terms of CG, as this is what should matter most during the Revolution period. It shows that the Revolution has had an important impact on the relationship which board independence, CEO duality, board size, and board diversity have with firm performance. The Revolution has caused this impact by influencing the internal mechanisms which firms use to face their internal weaknesses.

Thus, the present thesis first investigates the impact of the Revolution on the relationship between firms' internal CG mechanisms and firm performance, covering the following points. The thesis has both theoretical and practical contributions. In general, it highlights the importance of the internal CG mechanisms. It then illustrates how to enhance and improve the internal mechanisms so as to have significant effects on Egyptian companies. The dataset makes it possible to analyse the change using detailed information, so as to compare the situation before and after this event. It assesses the influence of the Revolution on enhancing performance and creating healthy firms. The author suggests that the board of directors is important on a day-to-day basis when it comes to formulating board actions which can overcome crisis situations similar to that which occurred during the Revolution. The impact of the Revolution on CG internal mechanisms is important, which could explain why the board of directors directly monitors and supports strategies designed to produce

growth opportunities, because said opportunities will be more important when ownership is diffused. Board of directors incentives and abilities can be used to manage and to coordinate efforts to enhance performance after events such as a revolution. Furthermore, the present study also provides related evidence regarding this impact in a voluntary CG setting and a "comply or explain" CG code together in Egypt. Thus, the findings may have important implications for the Capital Market Authority (CMA) when it comes to developing a CG policy in Egypt to enhance the level of financial performance. This is important from a regulatory point of view, as it shows that authorities should focus on the development of CG and ownership structure to enhance and create a more improved financial performance.

Second, the thesis analyses the economic impact of the Revolution and the effect that it has had on the relationship between ownership structure types and firm performance through influencing the structure which firms use to face internal and external threats. The author suggests that the Revolution has had different effects on the various types of firms' ownership, and these differences can be used to overcome what happened during the Revolution. It indicates that having certain types of ownership is more important than others when it comes to recovering from such economic impacts. The author considers that this could be explained by the fact that firms have to face many challenges, such as a faster decision-making process, ensuring that effective management is in place to gain stability and effectiveness, coping with market discipline, achieving better leadership, and aligning firms' interests with those of their shareholders. Firms have had to accept new investments to cover what was happening before the Revolution and its negative effects on performance. This thesis advances knowledge of the Revolution's impact by studying how a revolution influences financial performance; indeed, the author provides new evidence regarding financial performance's relation with CG and ownership structure, such as block ownership, government/state ownership, institutional ownership, and managerial/director ownership. Therefore, it enhances the already-existing information pertaining to the Revolution's impact by studying how a revolution can influence financial performance and ownership structure.

Finally, the thesis uses two different analysis methods and compares both of them. To the best of the author's knowledge, this thesis is the first of its kind to use the GMM

and PCA to ascertain the exact effect of the Revolution on the above-mentioned relationships.

1.5 Summary of the Results

The thesis' empirical results are classified into three categories according to the relationship with the dependent variable, which was examined using four different methods. The results indicate major changes between the pre-Revolution and post-Revolution periods. First, prior to the Revolution, ownership structure types and CG had a positive effect on firm performance; this was established using SGMM and PCA, and was supported by the mentioned hypotheses. The above effect can be explained by the fact that previous studies did not add the impact of the Revolution.
The Revolution had a negative effect on Egyptian firms' performance in 2011. Finally, after the Revolution, the positive effect of the relationship between ownership structure types and firm performance changed to a negative impact on the ownership structure types combined (PCA) or individually (SGMM). The relationship between CG and firm performance is positive, thus showing that voluntary CG setting and a "comply or explain" CG code together have a better impact on the CG practices within the Egyptian companies. All of these findings will be discussed and explained throughout the thesis chapters.

1.6 Thesis Structure

The thesis is organised as follows. Chapter 1 includes the introduction, the motivation for the thesis, a description of the aim and objectives, and, finally, the research contribution. Chapter 2 describes CG development and presents an overview of Egypt and the Egyptian Revolution. Chapter 3 consists of two parts, the first of which addresses the theoretical framework, including agency theory and resource dependence theory, while the second pertains to empirical studies concerning the different ownership structure types and the CG variables. Chapter 4 puts forth the research design and methodology of the thesis, following which Chapter 5 presents the main empirical results, before Chapter 6 covers the conclusion, implications, future research, and the limitations of this thesis.

Chapter 2: Overview of Corporate Governance Developments in Egypt and Egyptian Revolution

2.1 Introduction

The main objective of this chapter is to cover corporate governance, as it is an important variable to be examined and has many effects on, and advantages for, developing countries regarding growth rates, capital market, savings, national economy, investment rates, and minority shareholders' rights. It is expected that the corporate governance variables will be the most affected ones. These advantages and effects were the main reasons for choosing this variable to be included in the thesis. Corporate governance development worldwide is essential in terms of being able to understand it more and to be able to make comparisons between the countries with regard to the UK corporate governance code, the US corporate governance code, and the Egyptian Code of Corporate Governance (ECCG). The UK and US corporate governance codes are among the first to be created, which presents a good opportunity to compare them with the Egyptian governance codes. Egyptian corporate governance code is a combination of the UK voluntary and USA mandatory reforms, therefore the thesis' findings might add to the comparative corporate governance debate (Elsayed, 2011). This will be discussed in detail in the upcoming part.

The following part will discuss CG Code structure, ECCG Development, and a corporate governance report (ROSC) regarding Egypt; in addition, an overview of the Egyptian Stock Market (EGX 100) will be presented. Finally, this chapter includes the Egyptian revolution's background until the one in 2011.

2.2 Corporate Governance Definition, Importance, and Development

From decades, history has observed that the corporate governance system changes from time to time and has become a matter of growing concern for the shareholders' protection worldwide to adopt with the increase of industrialization, global economies and to improve firms' management in a complex environment (Abid & Ahmed, 2018). Corporate governance, as mentioned previously, is one of the main variables in this thesis, and in order to understand it and its importance, the next part will discuss the basics of the Egyptian corporate governance code. In 1978 the

first governance code was issued in the US; in 1989 Hong Kong was the second country to issue it, while Ireland, in 1991, was the third country, and the UK was the fourth in 1992. The US and the UK created 25 codes and codes revisions, while Hong Kong issued nine; Belgium and France eight; Canada seven; Australia, Spain, and Sweden created six each; and Denmark, Germany, Italy, the Netherlands, and Portugal created five. The rest of the countries have fewer than five codes (Aguilera & Cuervo-Cazurra, 2009).

Corporate governance definitions are continuously developing and changing, due to the change in society's expectations. The Australian Stock Exchange Corporate Governance Council (Exchange & Council, 2003) defines corporate governance as "the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled in corporations" (Council, 2014). Most of the corporate governance literature continuously focuses on the investors, shareholders, and controlling managerial misbehaviour, while at a broader level comprehending and recognising the importance of corporate and social responsibility (Maassen, 1999; Mubarak, 2011; Najib, 2007; Shleifer & Vishny, 1997). Good corporate governance is more than direction and control; it should reduce the number of fraud risks and collapse of companies while simultaneously increasing wealth creation, improving performance, and determining the capital cost in the capital market globally (Shimeld, Williams, & Shimeld, 2017). Corporate governance is a system which helps investors to be confident that their funds will be used in an efficient way and that they will see a competitive return; this is achieved through highlighting the importance of shareholders' high transparency. This system eases the rights and duties distribution through the firm, and provides rules and procedures for making decisions; moreover, the aims and objectives are set and monitored (Shimeld et al., 2017; Zheka, 2005).

The meaning of corporate governance, from a corporate perspective, is to balance between the interests of shareholders and those of stakeholders and to maximise shareholders' wealth. Corporate governance helps to determine the firm's directions, rights, and responsibilities and to design institutions and mechanisms which are able to control board directors and management in a better way, so as to achieve the objective (Mubarak, 2011). Stakeholders are the bondholders, workers, employees, lenders, suppliers, creditors, and consumers of the company who monitor the behaviour of the board and the management (Fawzy, 2003). It has many advantages

for the developing countries, e.g. allowing them to realise high/sustainable growth rates, deepen the capital market, increase their ability to mobilise savings, and increase their confidence in the national economy (Samaha, Dahawy, Hussainey, & Stapleton, 2012). It also helps to raise investment rates, protect the minority shareholders' rights, and encourage private sector growth; all of this is achieved by supporting competitive capabilities, helping to secure financing for projects, generating profits, and creating job opportunities (Fawzy, 2003). Some corporate governance practices should be redesigned in developing countries, e.g.: cross-ownership pyramiding of shareholdings, reduced liquidity dual-class of shares, and lack of agency between concentrated and minority owners. Countries with weak legal environments should apply and improve corporate governance, especially those that use external finance. The Arab firms are government or family-owned (with stock markets), but their openness changes due to privatisation, hence why there is a need for more external financing (Dahawy, 2008).

Corporate governance is very important because of its effects on the economic and social factors of firms over recent times. Its function is to increase the ethical behaviour of managers, to develop ownership structures, and benefit shareholders. It includes standards, laws, and rules to enhance the relationship between a company's insiders and its outsiders, namely management, shareholders and stakeholders. It helps to increase the responsibility, accountability, and transparency of the firm and it includes the protection of shareholders' rights, fairness, ethics, managerial discipline, independence, and social awareness (Fauzi & Locke, 2012; Fawzy, 2003). Corporate governance can help to reduce any corruption occurring in a company, because, as mentioned above, corporate governance can reduce fraud risks, and the company collapses while improving performance and balancing the interests of shareholders and those of stakeholders. This is one reason for the Revolution's effect on responsibility, accountability, and transparency. Indeed, it has effects on the economic factors of firms – which is the main concern here in the thesis – and especially on one of the developing countries, namely Egypt. The factors are as follows: raising investment rates, protecting the minority shareholders' rights, and encouraging private sector growth, which is needed. Corporate governance has consequences for institutional investors, the national level of governance quality, and agency conflicts that may occur in Egypt.

2.3 Egyptian Code of Corporate Governance (ECCG) Development

2.3.1 Egyptian Code of Corporate Governance (ECCG) Background

As mentioned, the Egyptian corporate governance system is a combination of the UK and USA codes and its basics from both codes. The upcoming part includes a short description of the corporate governance development to reach the Egyptian corporate governance code structure. The UK corporate governance development has its roots in the late 1980s and early 1990s when there were a series of corporate collapses and scandals. In 1992, Sir Adrian Cadbury issued the "Cadbury Report", which includes the relationship between the chief executive and chairman, the reporting on internal control and on the company's position, and the role of non-executive directors and it was a comply-or-explain code. The UK government asked Sir Richard Greenbury to observe the directors' rewards and directors' remuneration and issued the Greenbury Report in July 1995. Two years later the Hampel report was issued in January 1998 and stressed the need to restrict the companies' regulatory burden. It categorises the CG "principles in four distinct classifications which are directors, directors' remuneration, shareholders, and accountability and audit" (Short, 1999). The Combined Code (Cadbury Report (1992), Greenbury (1996), and the Hampel Report (1998)) was issued in 1998 and shows the importance of corporate governance while also signalling that firms should adopt board structures that are consistent with corporate governance. This code suggests that one-third of the board should be non-executive directors, which increased non-executive directors' proportion of the UK boards decreased duality, nomination committees are more common, agency cost decreases, and performance increases (Boone, Field, Karpoff, & Raheja, 2007; Coles, Daniel, & Naveen, 2008; Coles, Lemmon, & Meschke, 2012; Harold Demsetz & Villalonga, 2001b; Himmelberg, 2002). Separate guidance was then issued in 1999, which was aimed at guiding directors on how to develop internal control systems and risk management. The Code was updated in 2003 to combine recommendations from reports on the role of the audit committee and the role of non-executive directors.

The Financial Reporting Council (FRC) – independent regulator responsible for CG and reporting – took the responsibility of maintaining and publishing the code which

was decided by the UK Government. In 2010, the code was updated by the FRC to reflect the problems which had occurred in the UK 's financial services sector (Financial Reporting Council, October 2010). The next update was in 2014, at which point the Financial Reporting Council (FRC) focused on providing companies with information on the risks that affect their long-term survival as solvency, liquidity, risk management, and sustainability. The last update was in 2018, following amendments to the 2014 and 2016 codes. It focuses on providing companies with information on risks that affect their long-term survival, then the company will continue to monitor compliance with these changes. The code and the standards of auditors are updated and finalised before the implementation of the European Union Audit and Guidance Regulations. Moreover, updated guidance on audit committees is also issued.

As a conclusion of the UK CG code and after all of the updates which have been created, the first version of the UK Corporate Governance Code (1992) still has the classic definition of the code context in its paragraph 2.5:

"Corporate governance is the system by which companies are directed and controlled. Boards of directors are responsible for the governance of their companies. The shareholders' role in governance is to appoint the directors and the auditors and to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting the company's strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board's actions are subject to laws, regulations and the shareholders in general meeting" (Financial Reporting Council, October 2016).

The last three code updates (2014, 2016 and 2018) have almost the same principles which are:

1. Leadership: (The Role of the Board, Division of Responsibilities, The Chairman, and Non-Executive Directors).
2. Effectiveness: (The Composition of the Board, Appointments to the Board, Commitment, Development, Information and Support, Evaluation, and Re-election).
3. Accountability: (Financial and Business Reporting, Risk Management and Internal Control, and Audit Committee and Auditors).
4. Remuneration: (The Level and Components of Remuneration and Procedure).
5. Relations with shareholders (Dialogue with Shareholders and Constructive Use of General Meetings).

This indicates that the UK knows and appreciates the corporate governance code's importance, and the need for modifications and updates to cope each time with the frame and the needs of the country's companies, which is not the case in Egypt, as shown in the upcoming parts and should be modified as it has an effect on Egyptian firm performance.

Worldwide, the US was one of the first nations to concentrate on the governance of its publicly-listed corporations. The US does not have a single or authoritative national corporate governance code, which is explained by the resistance to the centralised regulation of corporate law, the fact that the developing standards process is decentralised, and because the US has a history of rules-based regulation, rather than a principles-based one (www.ecgi.org/codes/all_codes.php). Governance code is split widely into only nine categories, but there is variation in the wording and emphasis. These categories include the separation of the chairman and CEO, the naming of a lead independent director, the board size, limitations on tenure, majority voting standard in non-contested elections, classified boards, and availability of directors to meet with shareholders, compensation disclosure of specific executives, and the ability of shareholders to call special meetings (Gregory, Grapsas, & Powell, 2014). Each set of standards has a different organisation, concerns, campaigns, leadership, and rules or a set of criteria. This even stretches to the extent that each code may appear reactive and deals with a certain set of governance issues and arguments. As stated by the Sarbanes–Oxley Act, there is a direct association between law and regulation under external governance and internal control systems. The internal governance is divided into five basic categories (The Board of Directors, Managerial Incentives, Capital Structure, Bylaw and Charter Provisions, and Internal Control Systems); in addition, the external governance is also divided into five groups (a) Law and Regulation; b) Markets including capital markets, the market for corporate control, labour markets, and product markets; c) Markets which provide information for the capital market; d) Markets focusing on accounting, financial and legal services from parties external to the firm; and e) Private sources of external oversight). Since the Sarbanes–Oxley Act of 2002, there have been some changes in board structure,

such as an increase in board size and independence (Chhaochharia & Grinstein, 2004; Coles et al., 2008; Linck, Netter, & Yang, 2008).

In the years following World War II, the US experienced an economic boom, successful corporations grew rapidly, and the shareholders also profited (Bebchuk & Fried, 2003). The collapse of Penn Central in the 1970s developed the trend of executives and directors wanting to gain control over corporate management in the 1950s and 1960s (M. Eisenberg, 1989; Megginson, Nash, & Randenborgh, 1994; Ramsay & Blair, 1993). America's contribution to corporate governance in the 1980s and early 1990s was weak compared to that of Germany and Japan. By the early 2000s, Enron and WorldCom were major corporate governance scandals; indeed, the senior executives of these companies wanted to profit from stock opportunities and incentive-orientated compensation and tried to ensure that their companies met the quarterly targets of earnings (J. Johnson, Daily, & Ellstrand, 1996; Pi & Timme, 1993). Here is general information about the US corporate governance code, as its main objectives are to: protect the expectations of the investor, improve board quality, improve information availability to equity markets, and encourage corporate democracy with a high standard. The code covers NYSE-listed companies, issued by the National Association of Corporate Directors (NACD); the code is voluntary.

US/UK corporate governance systems have similarities as well as differences (Aguilera & Jackson, 2003; Aguilera, Williams, Conley, & Rupp, 2006; Toms & Wright, 2005). The UK and US CG systems are similar in the following ways: the importance of shareholders benefitting from duties of the fiduciary, equity financing importance, enhanced managerial accountability through active markets for corporate control, and flexible labour markets (Jensen & Meckling, 1976; Lehmbruch, Streeck, & Yamamura, 2001). In addition, neither of these codes has concentrated on individual block-holders, cross-shareholdings, or family-owned firms in large numbers (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997).

Table 2.1 shows a summary of the main parts of both countries' codes which are the basics for the Egyptian corporate governance code as board structure, CEO duality, board independence, the board size, CEO tenure, voting standards, boards and

shareholders, audit committee, and internal control systems. This will be explained more in the following part of the chapter.

Table 2.1: Summary of the UK and US Corporate Governance Codes Structure

UK Code of Corporate Governance	USA Code of Corporate Governance
In Cadbury Report (1992), Greenbury Report (1995), Hampel report (1998), The Combined Code (1998), A separate guidance (1999), Code of 2003, 2010, 2014 covered the following: - Chief executive, chairman, directors' rewards and remuneration, board structures and board independence, - Companies' regulatory burden, the audit committee, internal control systems - Risk management, the UK 's financial services sector problems, and long-term survival The last three code updates (2014, 2016 and 2018) cover - Leadership - Effectiveness - Accountability - Remuneration - Relations with shareholders	The first governance code (1978) There is no single or authoritative national corporate governance code and it is split widely into only nine categories: CEO duality, board independence, board size, CEO tenure, voting standards, boards and shareholders, compensation disclosure of specific executives, and the ability of shareholders to call special meetings The internal governance is divided into five basic categories: The Board of Directors, Managerial Incentives, Capital Structure, Bylaw and Charter Provisions, and Internal Control Systems The external governance is also divided into five groups: Law and Regulation, Capital markets, Corporate control market, labour markets, and product markets, Capital market information, Markets focusing on accounting, financial and legal services from parties external to the firm, and Private sources of external oversight

2.3.2 Egyptian Code of Corporate Governance (ECCG) and Development

As this thesis is concerned with companies' performance in Egypt, the following part will cover the Egyptian corporate governance code and its development, while it will also present a comparison with the corporate governance code of developed countries. In the late 1990s, the term "Corporate Governance" was a novel one in Egypt. Hence, Egypt is one of the first countries in the region to have focused on corporate governance, as included in the World Bank report. Some Arab countries have taken quick steps towards better applying corporate governance, such as the UAE (Kabir,

2011). The Egyptian Code of Corporate Governance was drafted by the Chairman of the Egyptian General Authority for Investment and Free Zones, Dr. Ziad Bahaa El Din, with the support of Mr. Maged Shawky, Chairman of the Cairo and Alexandria Stock Exchange. The ECCG draft was prepared with the help of an opinion survey, carried out by the Center for International Private Enterprise (CIPE), and assistance from consultation with the local accounting, auditing, and general business community leaders. ECCG preparation was based on the United States Middle East Partnership Initiative (MEPI), South Africa, Malaysia, and the Philippines Codes, as well as the Corporate Governance Principles and Standards through Organization for Economic Cooperation and Development. The ECCG includes five main sections about the rights of shareholders, equal treatment of shareholders, their role in corporate governance, disclosure and transparency about the corporation, and board responsibilities. Each section includes certain principles. There are two main groups of laws that govern the legal framework that impacts the concepts of corporate governance in Egypt (see appendix for short explanations of these laws).

1. Laws that govern the incorporation of companies in Egypt
   a. Investment Law (IL 8/1997) recommends investment in specific industrial locations or economic sectors by offering specific income tax exemptions or tax-free zones. It discusses the role of the BOD of a joint-stock company.

2. Laws that govern public and private sector companies listed on the Stock Exchange (EGX), including:
   a. Capital Market Law (CML 95/1992), which is the main law regulating the Egyptian financial market in terms of monitoring the market status in general and maintaining steadiness and growth. It includes information about the general assembly meetings, the board of director's authority, how the audited financial statements are prepared, and information disclosure.
   b. The Central Depository Law (CDL 93/2000), which is aimed at reducing risks associated with trading physical securities, and enhancing market liquidity, in addition to assuring fast securities exchange. In other words, the law maintains all registration, clearance and settlement procedures associated with trading transactions. It mentions the board of directors, general assembly, how to deal with other parties' interests, and how to audit the financial statements.

In the late 1990s, the Egyptian government recognised the need for, and importance of, a high level of corporate governance practices to gain the trust of the international community and foreign direct investment, and to encourage Egyptians to invest in Egypt rather than investing abroad. In 2001, the first corporate governance assessment in Egypt was conducted by the World Bank and the International Monetary Fund (IMF), as Egypt was the first Arab country to undergo a ROSC analysis (ROSC, 2001). The assessment evaluated Egypt's CG practices against the requirements of the OECD Corporate Governance Principles (Dahawy, 2008). In 2003, under the supervision of the Ministry of Foreign Trade, the Egyptian government established the Egyptian Institute of Directors (EIoD) to develop this investment environment. The EIoD improved corporate governance practices in Egypt by providing information on corporate governance principles and codes, while also improving corporate governance practices and strengthening the boards of directors in regional companies, which was applied by issuing the Egyptian Code of Corporate Governance. It is the first institute to have launched governance guidelines for state-owned enterprises (SOEs). The Ministry of Investment (MoI) was one of the important institutional reforms in Egypt. It was established to lead corporate governance reform efforts, such as the creation of the EIoD (Bremer, 2012).

In 2005, the first Egyptian Code of Corporate Governance (ECCG) was written in Arabic and was introduced by the Ministry of Investment and the General Authority for Investment and Free Zones (GAFI). The ECCG rules are not mandatory or legally binding, which gives the aforementioned code different and unique characteristics. The purpose of this is to increase the transparency of the Egyptian companies and to make them more understandable for international investors. These standards are implemented in Joint Stock Companies, Partnerships, and Limited Liability Companies, as well as companies that use the banking systems as a major source of financing. CG helps publicly-listed Egyptian firms to take less time to publish their annual financial reports, as this period was 134 days in 1998 and in 2007 was only 72 days. In 2006, the Ministry of Investment issued the Code of Corporate Governance for state-owned companies. The code introduces the principles of governing state-owned companies, by presenting an organisational and legal framework for this type of company.

Egyptian companies were required to implement the ECCG on a comply-or-explain basis and modify the code in order to better meet good practices, but an important opportunity was also lost when the ECCG was issued on a voluntary basis. Corporate governance rules have seen a development in Egypt over recent years and there is an obligation for companies to disclose their non-financial operations about their performance. Egypt ranks in the 43rd percentile on the Worldwide Governance Indicators (WGI), in terms of regulatory effectiveness (Shehata & Dahawy, 2013).
Version 1 of the Corporate Governance Code, issued in October 2005, was updated in March 2011. The new code is a guideline on CG practices. Companies should apply all of the regulations of this guide in the first place. However, the code expects companies to comply with everything it stipulates, or to explain the reasons for non-compliance and non-regulation. Each company must prepare a schedule with all the regulations of this guide, showing that it has complied/has not fully complied with all of the explanations and plans required to apply those regulations in the future if any. The company should disclose this report on its website and in its annual report. However, corporate governance regulations regulate and state the appropriate conduct within a company's management, in accordance with international best practices, which balance the interests of different parties involved.

In 2011, the Central Bank of Egypt issued a decision on CG guidelines that all banks in Egypt now apply, in accordance with a principle of proportionality, which may be similar to a compliance or interpretation approach. International audit firms and rating agencies exist and operate in Egypt. In view of the banking laws and instructions issued by the Central Bank of Egypt, the external auditor should not be appointed as a natural person for more than five years, and he/she may not be reappointed until two years after the termination of his/her employment as an external auditor. The Egyptian Corporate Governance Law (2005 and 2011) assigned the Egyptian banking sector to enhance the CG in the business sector. This can be achieved if corporate governance practices in the banking sector are the same as good CG practices outlined in the Basel Committee guidelines (Egypt Code of Corporate Governance Guidelines and Standards October 2011).

As such, improving the management of the Egyptian banks will have influential benefits other than the banking sector (K. Sorour, Howell, & Mishra, 2012). This

provides a useful approach to improve CG in the business environment, specially since most Egyptian companies are family owned or unlisted. As a result, since banks are the main funds' source for most of these companies, banks can maintain good CG on their part if they are good models of stellar corporate governance. The reform of the Egyptian governance of banks is a constantly developing process, as banks apply the principles of CG to achieve the Central Bank of Egypt legitimacy and the shareholders (M. K. Sorour, 2011).

In 2016, the Egyptian Institute of Directors (EIoD) updated its previous codes, combining them into the more comprehensive Egyptian Corporate Governance Code. The new Code is broader in application, enabling it to cope with the distinct nature, complexity, rates of growth, and size of Egyptian companies. Companies can apply what fits them best; the Code acts as a guideline for updating CG regulations and legislation for all Egyptian legislative and regulatory bodies.

The 2016 updates and modifications to the Egyptian Corporate Governance Code:

a) introduced a Governance Code drafting methodology, employing an advanced CG manual in Egypt, and highlighting the State's crucial role in supporting governance concepts and applications;
b) highlighted the benefits and importance of good governance;
c) determined the scope of application of these principles and the extent of their compatibility with each company's nature and size;
d) introduced the "Comply or Explain" rule as a fundamental pillar on which rests the enforcement of the principles' implementation;
e) enhanced users' understanding of the contents of the Code by increasing their awareness and knowledge of the concepts and terminology used therein;
f) achieved the objectives of a company through electing a General Assembly of Shareholders to choose an effective Board of Directors;
g) specified that the role of the Board of Directors is to manage and direct the company, apply governance principles while considering diversity, and taking responsibility for performing functions and duties;
h) addressed the roles and responsibilities of the Board Secretary;
i) stressed the importance to companies of controlling the environment, beginning with the establishment of internal control;

j) emphasised the need for each company to have its own corporate governance department, as well as the importance of external auditors, internal auditors, and risk management;
k) outlined the critical nature of investor relations activity in listed companies;
l) highlighted the importance of the disclosure of material information, such as non-financial disclosure, and clarified the disclosure methods and tools that should be used in various periodic reports.

The most recent update to the Code aims to assist all bodies to understand and apply good governance in order to achieve sustained growth, thereby achieving the mission and strategy of the EIoD and helping companies' stakeholders as well as the national economy.

As a conclusion, Egypt has 3 codes in 2005, 2011, and 2016, which affect the data of the thesis, for example, the Code of 2005 is effective until 2011 affecting the years 2008-2010, etc. The following part shows the strengths of the codes. The strengths are as follows:

- Egypt's corporate governance system is based on the corporate governance principles of the Organisation for Economic Co-operation and Development (OECD). The code specifically recommends that listed companies adopt the code on a comply-or-explain basis.
- The Egyptian Institute of Directors is responsible for promoting the implementation of corporate governance recommendations among listed companies, state-owned companies, and public sector companies. It is also responsible for promoting awareness of best corporate governance practices
- In 2011, the Central Bank of Egypt issued a decision on governance guidelines applied by all banks in Egypt, in accordance with the principle of proportionality. In practice, this approach means that banks are generally required to apply the aforementioned rules. However, if the bank cannot abide by some provisions, it must give a strong explanation for its non-compliance based on the above principles, to the satisfaction of the Central Bank of Egypt. Although the objectives of these rules are precautionary and differ from the objectives of a corporate governance code, compliance monitoring may be similar to the comply-

or-explain approach. In practice, most banks generally refer to compliance with these rules or disclose governance structures accordingly. The Egyptian Banking Institute, which operates under the supervision of the Central Bank, offers training courses for bank employees to enhance banks' compliance with these regulations.

As conclusion Table 2.2 shows the differences between all the Egyptian corporate governance codes and highlights that the last update concentrated more on the boards, policies to be applied, code of ethics, and the comply or explain rule.

Table 2.2: Summary of the Differences between Egyptian Corporate Governance Codes Structure

2006 and 2011 Codes	Code of 2016
1. General assembly. 2. Board of directors 3. Internal audit department 4. External auditor 5. Audit committee 6. Transparency and disclosure 7. Rules for avoiding conflicts of interest 8. Corporate governance regulations for other companies	1. General Assembly of Shareholders 2. Board of Directors 3. Board Committees 4. Control Environment 5. Disclosure and Transparency 6. Code of Ethics and Business Conduct 7. Board of Directors' Charter 8. Board Committees Charters 9. Policies for Succession Planning, Disclosure, Whistleblowing, Conflict of Interest, and Corporate Social Responsibility 10. Comply or Explain Rule

2.3.3 Corporate Governance Report on the Observance of Standards and Codes (ROSC) about Egypt

The ROSC identifies the weaknesses affecting a country's financial and economic vulnerability. Its benchmarks are the country's regulatory and legal framework, and the corporate governance practices of listed firms regarding the OECD principles. Its assessments are systematic, standardised, and focus on the corporate governance of companies listed on stock exchanges. Those assessments are used to measure progress over time.

The World Bank complied with the ROSC report 3 times in 10 years, between 2001 and 2009, for Egypt. This report suggests a number of reforms to the laws, regulations, and institutions; these reforms affect the corporate governance as a cadre

of experienced, qualified, and professional directors and owners who understand the business case for good corporate governance. The upcoming part will summarise the ROSC's findings.

The relationship between board oversight and management, board policies development, and concrete action plans implementation is often blurred in Egypt. The boards fail to examine key performance objectives, the company's risk policy, and the developing success policies, while also failing to monitor managerial and corporate performance. Audited annual and semi-annual financial statements must be produced for any company with 100 shareholders or more. The Accounting and Auditing ROSC finds that the quality of financial disclosure is thought to have improved greatly, though some concerns remain regarding the application of the new EAS.

ROSC Report (2009) comments stated that Mr. Sebastian Moleineh (Operation Manager in the corporate governance sector of the World Bank and Head of Teamwork, as well as the person who prepared this report) said that the governance rules application is facing problems. He mentioned that the problem is that it is difficult to have accurate information about the BOD of family companies. He also added that the existence of companies owned by the government represents an obstacle to the disclosure rules, as there is an embarrassment on the part of audit committees in reporting to the companies' board of directors, to shareholders, or to the state.

Mr. James Christopher Rezok (Chief Officer of Governance Operations in the Middle East and North Africa of the International Financing Corporation) mentioned that there are conflicts of interests between the chairman and the BOD, and these conflicts damage one of the corporate governance principles, as the managing director is required to evaluate himself as a chairman of the BOD (Youssef, 2012).

Among nations, with respect to world governance indicators, Egypt does not rank high (World Bank, 2016). The country in fact ranks in the 32nd percentile in control of corruption, the 28th percentile in government effectiveness, the 18th percentile in regulatory quality, the 36th percentile in rule of law, and the 14th percentile in voice and accountability. As shown in the table, there is a big difference in some of the indicators between the year 2008 and 2016, e.g. government effectiveness, regulatory quality, and rule of law; indeed, this supports the notion that the revolution could be a reason for this progress.

Table 2.2: Government Effectiveness Indicators

	Control of Corruption	Government Effectiveness	Regulatory Quality	Rule of Law	Voice and Accountability
2008	23.79	43.20	49.51	51.44	13.46
2009	36.36	47.37	46.89	52.61	14.22
2010	30.95	42.11	46.89	49.76	13.74
2011	25.59	35.07	41.23	41.78	14.08
2012	33.18	23.22	33.65	40.38	25.82
2013	31.75	20.85	29.38	33.33	16.90
2014	30.77	20.19	26.44	29.33	14.78
2015	30.29	22.12	22.12	31.25	14.78
2016	32.21	27.88	17.79	35.58	14.29

Source: World Bank, 2016

2.4 Overview of the Egyptian Stock Market (EGX 100)

The main data source of this thesis is EGX, which motivated the author to give a brief overview of how it started and how the companies are listed. Cairo and Alexandria are the two locations for the Egyptian stock market and are managed by the same chairman, who is appointed by the government, and the same board of directors, who are elected from representatives of the capital market authority, market participants, the public sector, the banking sector, and the Central Bank of Egypt. Cairo and Alexandria were established in 1883 and 1903 respectively. In the 1940s, they reached their historic peak after constituting the fifth largest market in the world, following which there was a reduction in activity on the stock exchange in the mid-1950s. In 1990, the exchanges started growing after a long low market activity. The EGX 100 Index includes all companies in the EGX 30 and 70 Indexes.

The number of listed companies in the EGX rose from 656 companies in 1992 to 1,148 companies in December 2002 and 1,079 companies were listed at the end of September 2003 (Fawzy, 2003); (Kabir, 2011; "World Bank - Report on the Observance of Standards and Codes (ROSC), Corporate Governance Country Assessment, Egypt," 2004). The Egyptian Stock Exchange issued strict delisting

rules, forcing the publicly-listed companies to make a commitment to CG requirements or to be delisted. After applying corporate governance, the number of companies listed on the stock market decreased from 1,148 companies in 2002 to 333 companies in 2009; there were 240 companies in April 2010, and then fewer than 150 companies (Shehata & Dahawy, 2013). The exchange is updated every six months, in order to account for the changes happening in trading volumes and values, as well as the new listings. The EGX is a self-regulatory and independent organisation (Shahid, 2003).

Moreover, the Capital Market Authority (CMA) is an official supervisory authority in Egypt which is responsible for the transparency and security of market activities and institutions, for facilitating capital growth by improving required disclosure, and for promoting new investment instruments.

Enhanced electronic filing systems have been developed by EGX and CMA, so that the annual financial statements for the most active stocks are available online for limited five-day periods on the official EGX website, after which time they are only available for a fee via an EGX subsidiary (Shehata & Dahawy, 2013) article. The EGX listing rules contain three criteria to begin the process of differentiating and branding listed issuers, which include profitability, minimum share capital, and the number of shareholders.

Fawzy (2004) reported that listed companies in EGX have four important characteristics that make them different from the developed countries and help to implement corporate governance in Egypt:

(1) Most of them are closely held.

(2) Considerable state ownership in privatised companies.

(3) Weak board independence.

(4) Disclosure is not a common practice.

2.5 Egyptian Revolution

In general, past and current revolutions have huge effects on the world economy on the one hand, and on the other hand, on regional, national (i.e. engaged countries) and local economies as well. For example, the 1917 Bolshevik Revolution's consequences

for Russia changed the legal, political, and economic positions of natural and legal persons, and it was the reason for the rise of the world's greater authority, known as the Soviet Union. Communism resulted in ending privatised agricultural lands and creating state-supported collectivisation. It affected world economic factors as per-capita income, the national income of the Soviet Union (Smith, 1994; Worobec & Metcalfe, 2001). Another example is the Chinese Revolution during the Mao-Zedong era and the emergence of Mao's theories as Maoism. China had a market transition followed by communism and did not instantly carry out privatisation nor lower government control over prices and exchange rates. Per-capita income reached its lowest level compared to national income. Limited foreign investment was allowed. (Ch'En, 1967; Huang & Wei, 2011). This explains that while a revolution has political, economic and market transition effects, this thesis is only concerned with economic effects.

Egypt is the 30th largest country in the world, with major economic power and a prime geopolitical location in North Africa; it is also the cultural leader of the Arab world. This intercontinental country is bordered by the Gaza Strip (east), Libya (west), Sudan (south) and the Mediterranean Sea (north). The country has varied terrain, with a long coastline along the Red Sea and the Mediterranean Sea. A large part of the Sahara Desert lies within Egypt's borders. The ancient Egyptian civilisation dates back 3,000 years before Christ, culminating in the Great Pyramids and the Pharaohs (Economy Watch, 2017). The country's population stands at over 97 million, with many young people (median age is 23.9 years). Egypt has an area of 1,001,450 square kilometres and its capital city is Cairo, which is located in the north of the country (Central Intelligence Agency, 2018). Revolutions and protests already have a history in Egypt, as follows: strong protests against the British (1882); and against British occupation in 1914 (British troops did not leave until 1956); there were huge popular protests against the imposition of martial law in Cairo in 1921 and a growing sense of nationalism and Egyptian identity; the Egyptian revolution of 1952 overthrew King Faruk, and Nasser became leader, not only of Egypt but of the Arab world, promoting 'Arab socialism', against the Camp David Accords (1978) (Peters, 2011).

Urabian Revolution, 1919 Revolution, and Revolution of 1952

Egypt has a history of revolutions over the last two decades. During the Urabian Revolution, or al-Thawra al-Urabiyya, 1879-1882, in which Ahmed Urabi played a prominent role, the Egyptian people were originators of this revolution, and the officers were the reliable representatives of the people. In 1882, the British occupation started in Egypt, following which, towards the end, Urabi's voice fell silent and could not defeat Khedive's regime against the people. Therefore, the national forces and national leaders, Qasim Amin, Mohamed Abduh, Ahmed Lotfi al Sayid and Mustafa Kamal, reached their peak in the 1919 Revolution (Azeez, 2015; Gopal, 2016; Koehler, 2018; Nasser, 2017).

The Revolution of 1952 in particular had a massive effect on the financial, legal, and economic positions of the natural and legal persons, as well as the economic activities of the financial and non-financial companies, and on the stock market performance. The consequences of the Revolution of 1952 are as follows: The Command Council of the Revolution decided to stop the Egyptian Stock Market activities and the exchange between legal persons and between companies, be they national or international. After the reduction in activity on the stock exchange in 1961 and then in 1990, the exchanges started growing after long low market activity. The Suez Canal Company is an important economic example of the activity of one of the companies affecting the per capita income, and national income in worldwide economies; this example also reflects the revolutions' consequences, and especially the Revolution of 1952.

Revolution of 1952 effect on Suez Canal activities

The Universal Company of the Suez Maritime Canal, or Suez Canal Company (Egyptian joint-stock company), was established on January 5th 1856, and the opening was in 1869, with a capital of 2 million French francs representing 400,000 shares, each costing 500 francs. Its shares were owned by foreigners and Egypt owned 176,602 shares, equating to 44% of the company's capital. The concession of the canal was that it shall be open forever to any merchant's vessel and on its expiration, 99 years following the opening, the Egyptian Government takes ownership and

control of all the company's materials and supplies. Egypt sold its shares to Britain during the era of Ismail Pasha, khedive of Egypt and Sudan and enjoys only 15% of the company's profit. Egypt also sold 15% in 1880 to France for 22 million francs; following this, by 1938, the 15% owners had gained 137,229,296 francs, which explains the profit jump from just 15% (Abou-El-Fadl, 2015; Delson, 1957; Vermeyden, 2017). The Suez Canal is an important waterway, connecting the Mediterranean Sea to the Red Sea, through the Isthmus Suez. It has decreased transportation costs and time by around 40%, benefitted industrial countries and was connected by raw materials sources. It created new economic and development activities, such as Port Said, Ismailia, Suez, and El- Qantara. It has been established that other companies related to canal activities fall into the areas of maritime, fishing, shipbuilding, ship catering, and food (Amin Mostafa Afifi Abdallah 1952).

As a comparison, between the years 1952, 1956 and then 1967, when the Suez Crisis Tripartite Aggression Sinai War (Israel, UK, and France) happened, Port Said was mostly affected and sustained great damage, resulting in it being wiped off the map. This war stopped the economic activities in Port Said, Ismailia, and Suez, while also closing the Suez Canal, thus affecting the national income due to loss of the canal's income and of course the per capita income of the three canal cities. Studying the reasons for the 1952 and 1967 events, which stopped and decreased the canal's profit, revealed that they were due to political decisions taken by the Revolution of 1952 leaders until reaching the Canal's nationalisation, which was the main reason for the Tripartite Aggression Sinai War. Accordingly, the political decisions of the revolutions' leaders regarding the conflicts between Arab nations and Israel ended when Sinai fell under Israeli occupation in 1967. As mentioned before, the canal has not been working at full capacity since 1952 and was closed in 1967 before being reopened in 1975. Thus, when comparing the canal's performance before 1952 to that between 1952 and 1975, the researcher concluded that there is a relation between revolution and the economy and the company's performance.

Revolution of 25th of Jan, 2011:

The past decade witnessed one of the most vital periods of Egyptian protest against Mubarak's regime for various reasons, such as Arab causes, civil domestic

issues, international matters, political, economic, and social rights (Ali, 2012). Egyptians had complaints and explanations that drove for the Egyptian Revolution 2011, namely: surging food prices, poverty, unemployment, inequality, corruption and authoritarian rule that smother public protests quickly and often brutally (Korotayev & Zinkina, 2011). The Egyptian Revolution put an end to the 30-year regime of President Mubarak (Azzam, Fouad, & Ghosh, 2013).

Table 2.3: Summary of the Egyptian Revolution 25th of Jan

This table is based on the author's personal living of the events and supported by Attia et al. 2011.

Date	Event	Action	Impact
14th of Jan 2011	The Tunisian Revolution	Success to force Tunisian President after 4 weeks of considerable demonstrations and the president flee the country,	The Egyptian people were motivated by this success which was strongly smoothed through social networks
14th to 24th of Jan 2011	Facebook event for the January 25 demonstration	Demonstrations of the Egyptian's people were spread quickly on Facebook and Twitter	Over 90,000 subscribers confirmed their participation
25th of Jan	Day of Revolution	All over Cairo and other cities' streets in Egypt, there were tens of thousands of Egyptians protestors	Another call on social networks for other huge demonstrations across Egypt on January 28
26th – 27th of Jan	Block Facebook, cut Internet and cell phone communications	The Egyptian government decided this for six days beginning the 26th	This lead the protestors to demonstrate day and night all over Egypt and especially in Cairo's Tahrir Square
28th of Jan	Friday of Anger	1–2 million people demonstrated expressing their anger across Egypt	The demonstrations turned the uprising into the Egyptian Revolution. Mubarak addressed the nation and promised to form a new

			government
1st of Feb	Mubarak addressed the nation again	He stated that he would stay in power until September and then he will not run for president again	A large number of Egyptians sympathize
2nd of Feb	Battle of the Camel (Bloody Wednesday)	on this day, many Egyptian demonstrators were beaten and killed	The number of demonstrators increased and reached 4–5 million people throughout Egypt
4th of Feb		The protestors reached 20 million people across Egypt	The people's demands escalated
10th of Feb		Again, Mubarak refused to step down from the presidency He delegated his duties to his vice president	The parliament, national TV, ministries, and, Mubarak palace and residences were surrounded by demonstrators
11th of Feb	Finally, Mubarak stepped down	Egyptian Army Supreme Council took over	The Revolution main objectives were achieved by this day
11th to 18th of Feb	Celebrations of the success of the revolution	Egyptian Revolutionary leaders and the Egyptian Army Supreme Council highly collaborated together	revolutionary leaders' goals were to safeguard the revolution accomplishments and Reinforce the revolution demands in positive manners

Revolutions affect the economy in general and firms (financial or non-financial), especially one of the most important industries in Egypt, which is tourism; when compared to before and after 2011 (Egyptian Revolution), based on the State Information Service and the Egyptian Travel Agents Association (ETTA established in 1968), it can be concluded that the following factors are affected and had affected the performance.

1. Number of tourists before and after the Revolution
2. Hotels occupancy
3. Number of temporary workers
4. Certain companies stopped working
5. Inability to pay employees' obligations
6. Inability to pay debts to banks

Other activities were affected as

1. Tour guide companies
2. Food supply
3. Airplane companies
4. Security and cleaning ones
5. Tourism Transportation companies
6. Others

Throughout the history and most of the previous revolutions made major changes as Bolshevik Revolution in year 1917 changed legal, political and economic positions (Smith, 1994; Worobec & Metcalfe, 2001) and in China, there was a market transition, changes in per-capita income and in foreign investment (Ch'En, 1967; Huang & Wei, 2011). Also, previous revolutions in Egypt as Urabian Revolution, 1919 Revolution, and Revolution of 1952 had a massive effect on the financial, legal, and economic positions of the natural and legal persons, as well as the economic activities of the financial and non-financial companies, and on the stock market performance (Azeez, 2015; Gopal, 2016; Koehler, 2018; Nasser, 2017). Accordingly, as per the author's knowledge, this is the first study covering the impact of the Egyptian Revolution on the relationship between firms' internal corporate governance mechanisms and firm performance. Therefore, these suggest the first hypothesis. This

hypothesis is used to show and contribute the effect of the Egyptian Revolution on corporate governance, ownership structure variables and the Egyptian firm performance.

Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance

Hypothesis 2: There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance

The author selected Egypt because it is a major economic power with a history of revolutions and protests. Over the past two decades in particular, revolutions have affected both the wider economy and the firms operating within it. However, the revolutionary history of Egypt begins much earlier, with the Urabian Revolution (or al-Thawra al-Urabiyya) of 1879–1882. This was followed by an uprising against the British in 1882, another against British occupation in 1914, two revolutions in 1919 and 1952, respectively, and finally, the 25 January 2011 revolution, which was driven by national discontent over corruption.

2.6 Chapter Summary

This chapter includes a comparison between the UK, US, and Egypt corporate governance and it determines the level of corporate governance application in Egypt to help investors and highlight the importance of responsibility, accountability, and transparency of the firm. As suggested developing countries should redesign cross-ownership pyramiding of shareholdings, reduced liquidity dual-class of shares, and lack of agency between concentrated and minority owners. Corporate governance affects Egypt and should be used to reduce the company's collapse, improve performance, and balance the interests of shareholders and those of stakeholders. The Capital Market Authority (CMA), works on enhancing the transparency and electronic filing systems of the annual financial statements for the most active stocks. CMA should suggest more modifications for ECGC as in the UK, the corporate governance codes are modified and updated frequently to cope each time with the frame and the country's companies' needs. Egyptian corporate governance code

should focus more on leadership, effectiveness, accountability, remuneration, relations with shareholders as in the UK; and should focus on investor protection, board quality improvement, improve information availability to equity markets, and encourage the corporate democracy with a high standard as in US corporate governance code. This thesis' analysis covers the year 2008 to 2017 which explains that these data are affected by Egyptian Corporate Governance Codes of 2005, 2011, and 2016. This clarifies the importance of discussing the ECGC and to study the impact of the Egyptian Revolution on corporate governance. It is also concerned with Egyptian companies and how to enhance the corporate governance code with the help of the developed countries' ones because all these arguments are related to each other.

The chapter also reviews the Egyptian Revolution 25th of January and Egypt's government effectiveness indicators. These indicators highlight the big difference between year the 2008 and 2016 which supports that the Revolution can be a reason for this progress and encouraged the author to study more about the Revolution impact. The revolutionary history of Egypt has begun with the Urabian Revolution (or al-Thawra al-Urabiyya) of 1879–1882 reaching the 25th of January 2011 revolution, which motivated the author to select Egypt. Revolutions have affected the wider economy and the firms' performance worldwide as explained it is this chapter by giving examples of the Bolshevik Revolution and the Chinese Revolution. As per the author's knowledge, there are no prior studies about the impact of the Egyptian Revolution, one of the most vital revolutions, on the relationship between corporate governance and firm performance.

Chapter 3: Literature Review

3.1 Introduction

The main objective of this chapter is to explain theories relevant to the relationship of ownership structure and corporate governance with firm performance. This chapter includes a review of agency theory and resource-dependence theory by adopting a theoretical framework to answer the important question of how the Revolution has impacted the Egyptian firms. Corporate governance and firm performance have complex nature in line with prior studies and need multiple-theoretical approach adoption (Haniffa & Hudaib, 2006; Kiel & Gavin, 2003). It also includes a review of the empirical literature development of the ownership structures and the relationship between corporate governance, ownership structure, and firm performance in developed countries, Arab countries, and specifically Egypt. The section ends by stating the hypotheses for this research.

3.2 Theoretical Literature Review

Corporate governance and firm performance have complex nature in line with prior studies and need multiple-theoretical approach adoption (Haniffa & Hudaib, 2006; Kiel & Gavin, 2003) such as agency theory and resource dependence theory. This explains the study's multiple-theoretical orientation. These theories are drawn from a variety of views, such as finance, accounting, economics, and law (Boris & Puzone, 2009; Rwegasira, 2000). Common among them include agency theory and resource dependence theory.

3.2.1 Agency Theory

This section discusses agency theory, decreasing problems of agency, maximising performance and enhancing harmonisation of interests. The ownership structure comprises two potential agency problems. One occurs when shareholders are numerous and dispersed, and no one can manage them as a group, leaving that constituency unconstrained and pursuing its members' interests. In this case, when top

managers own large amounts of stock, they will make decisions to maximise stockholder wealth, primarily to maximise their own wealth (Jensen & Meckling, 1976). These problems lead to diluted ownership because no shareholders have any motivation to monitor or to manage, nor do they have ownership rights to control the firm or receive private benefits. Fama and Jensen (1983) suggest that separating management from the decision-making process may reduce agency conflicts that arise from a disagreement between shareholders about management policies or when the interests of owners, managers and outside shareholders differ from those of the controlling and the minority shareholders. By increasing equity ownership and encouraging managers to work more efficiently, the agency conflicts will decrease, wealth will increase and conflicts of interest will be controlled (Fama & Jensen, 1983a; Jensen & Meckling, 1976; Shleifer & Vishny, 1986).

The second potential agency problem arises when the absolute control of the firm lies with only one shareholder who can take actions to benefit himself (La Porta et al., 1997). Kaur (2008) mentions that the separation of ownership and control in the modern corporation is the reason for agency problems. Control of top-level decisions rests with the board of directors (BOD), which deals with agency problems caused by the separation of ownership and control. BOD includes firm managers (inside directors) and members who are not full-time employees (outside directors). In developed countries, agency problems are the source of high shareholder costs. Legal protection is one of the main methods for solving the minority investors' agency problems, frequently seen in the US and other developed markets. Methods of solving agency problems also include using boards of directors to monitor management and control corporate activities. Another line of research examines the impact of corporate governance (CG) mechanisms on managing agency problems. For example, Omran (2009) says that CG is a set of internal and external mechanisms for motivating managers to work harder to increase firm performance and value. Agency problems can be solved and controlled by a board of directors that maintains effective corporate governance, ownership concentration and managerial ownership to increase firm performance (Chi & Wang, 2009; Jensen & Meckling, 1976; Kaplan & Minton, 1994).

Agency problems are the best way to explain the meaning of agency theory and behavioural agency theory. Agency theory focuses on cost control and harmonisation of interests, while behavioural agency theory model emphases agent performance at the centre, saying that the shareholders and their agents' interests are likely to be aligned when executives perform their best potential. Behavioural agency theory proposes reconceptualising and developing a new model that assumes constrained rationality, recognising the importance to agents of human capital and following the rational-choice model when it comes to loss, risk and uncertainty aversion, time discounting, indignity and replacement between internal and external motivations. Agency theory places less emphasis on the goal of motivating agents to reconcile the interests of agents and principals by performing to the best of their ability. The behavioural agency theory says that maximising an agent's performance should be a primary objective of the relationship between the agent and the principal, recognising the importance of the agent's work motive. If the relationship between inputs and outputs is disproportionate, then the agent becomes dissatisfied and not motivated to work. Agents will be happy in their work and motivated to continue to contribute at the same level or higher if they feel that the input, effort and skills put into their work are rewarded adequately with the tangible and intangible rewards of employment (Hoskisson, Chirico, Zyung, & Gambeta, 2016; Pepper & Gore, 2012). The behavioural agency theory assumes that the concentration of ownership facilitates the translation of individual members' goals into uniform organisational goals, particularly where the overlap between family members and the organisation is intense, covering a wide range of economic, social and cognitive dimensions and the generation of embedded business decisions in a visible family system of rules and values. This perspective applies when the relationship between owners and managers is not 'at arm's length'. Such circumstances require considering the contextual role of the ownership structure and the identity of the owners in efforts to chart the implications of efficiency and effectiveness of the corporate governance system (Visintin et al., 2017).

In conclusion, agency theory suggests that the separation of ownership and control leads to agency problems, and separating inside directors and outside ones from the decision-making process may reduce agency conflicts. The corporation should maintain effective corporate governance mechanisms to encourage managers to work

more efficiently. It should also enable ownership concentration and managerial ownership to decrease agency conflicts, increase wealth, cost control and harmonisation of interests, control conflicts of interest and increase firm performance and value. Behavioural agency theory asserts that the main objective should be maximising performance and enhancing the relationship between the management and shareholders. Moreover, the relationship between inputs and outputs should be proportional, rewarding the input, effort and skills with the tangible and intangible rewards of employment. Finally, the concentration of ownership facilitates the translation of individual members' goals into uniform organisational goals.

3.2.2 Resource Dependence Theory

Resource-dependence theory (RDT) states that the board is a tool for managing environmental and strategic uncertainty by accessing scarce resources and information, making the board an important factor and component of firm efficiency (Boyd, 1990; Pfeffer & Salancik, 1978b). This theory includes two important effects on board structure: environmental pressures and demands that affect it and the differences in board structure that affect the firm's performance. Most studies that discuss predicting the firm's financial performance emphasise factors such as board size, financial ties, number of interlocks, number and percentage of outside directors and competitor ties.
(B. Boyd, 1990).

This theory addresses the relationship between an organisation's behaviour and actions and its environment. It represents and explains the political and economic model of organisational and interorganisational behaviour, in terms of the important resources the organisation needs to survive and function. It focuses on certain resources as they flow between organisations, and on power differentials and dependencies that result from an unequal exchange of resources, dependence effects on organisation action and the organisation leaders' management of dependence. Thompson (1967) examines the external flow of resources into organisations and the uncertainty implications of this flow for the organisation's action and behaviour. It

clarifies power differences within organisations and describes the appropriate choice of strategies as a political activity (B. Johnson, 1995).

Pfeffer and Salancik (1978) mention that boards can manage environmental dependencies and needs. They explain that directors bring benefits to the organisation, such as advice and counsel, access to information channels between the firm and environmental contingencies, access to resources and legitimacy. Also, they describe RDT as an open system that is dependent on incidents in the external environment. They suggest five possibilities for minimising environmental dependencies: merger integration, joint ventures and other interorganisational relationships, boards of directors, political action, and executive succession. RDT recognizes joint ventures and interorganisational relationships, such as research and development, strategic alliances, research consortia, buyer-supplier relationships, agreements and joint-marketing agreements (Barringer & Harrison, 2000; Oliver, 1990).
Boards of directors allow firms to decrease dependence or increase resources (Pfeffer, 1972), and RDT is also used to examine boards. Such examination includes board size and composition, as indicators of the board's ability to provide critical resources to the firm. In addition, RDT explains mergers and acquisitions of firms (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009; Haunschild, 1994; Yin & Shanley, 2008). Pfeffer (1976: 39) suggests three reasons for mergers and acquisitions: to reduce competition by absorbing an important competitor of the organisation, to accomplish interdependence through input sources or output purchasers and to expand operations that will decrease dependence. Resource dependence has two dimensions, namely, mutual dependence and power imbalance. Mutual dependence is an important reason for mergers and acquisitions, while power imbalance or power differential between two organisations can create problems for their formation.

The theory suggests that a firm's survival depends on its ability to control environmental resources, a determinant of firm performance (Aldrich & Pfeffer, 1976; Pfeffer, 1987; Pfeffer & Salancik, 1978b). It states that social forces, regulation and competition are reasons for the firm to have environmental linkages. Resource-dependence theory holds that when the firm is more dependent on its environment, it may acquire more control over resources by strengthening linkages with that environment (Aldrich & Pfeffer, 1976; Pfeffer, 1972; Pfeffer & Nowak, 1976;

Tolbert, 1985). Firms that cannot reduce interdependence and uncertainty create an environment that better suits their interests but also attempt to modify external economic environmental conditions. Firms that face the same environmental dependencies usually use the same co-optation strategies that help to predict firm responses and seek to create linkages with the government through their boards to manage their interdependence (Aharoni, 2000; Blumentritt & Nigh, 2002; Pfeffer & Salancik, 1978a).

Dalton and Kesner (1983) mention that RDT is used to examine the relationship between an organisation's size and internal or external candidates. They find that companies with reasonable or poor performance tended to choose insiders as new CEOs, while companies with midrange performance select outsiders (Dalton and Kesner, 1985).

Resource-dependence theory and its relationship with firm efficiency concern the board's ability to manage environmental and strategic uncertainty and deal with resources and information scarcity as they advise, counsel and access information channels and resources. Firms create environments in which to modify external economic environmental conditions, when they cannot reduce interdependence and uncertainty, and to create linkages with the government through their boards to manage interdependence. RDT discusses mergers, acquisitions, board size, composition and relationships between the organisation's size and internal or external candidates and suggests controlling environmental resources that will affect the firm's survival and performance. It is used to represent and explain social forces, regulation and competition and reasons for the firm to have environmental linkages to survive, function and reduce dependence or increase resources.

3.2.3 Theoretical Literature Review Summary

The theories discussed above were chosen using the following assessment, about which more detail follows. Agency theory shows the relationship between equity ownership, managers, agency conflicts, wealth and conflict of interest. It includes the difference between minority and majority shareholders, external and internal

shareholders and different internal shareholder groups, such as companies, financial institutions and family members. The behavioural agency theory pertains to performance maximisation and ownership concentration. Ownership concentration and managerial ownership figure in the board of directors solving and controlling agency problems through effective corporate governance. Resource-dependence theory explains the important resources the organisation needs to survive and function. Boards of directors allow firms to decrease dependence or increase resources by providing access to resources, as RDT is an open system dependent on incidents in the external environment. It examines board size and composition, explains mergers and acquisitions, shows how the ability to control environmental resources is a determinant of firm performance and the variance between outsiders and insiders as CEOs.

There is no evidence that only one single theory can completely explain the effect of the Egyptian Revolution on Egyptian firms and thereby the thesis draws on agency theory and resource-dependence theory. The following part will summarize some examples of how these theories suggest and support the chosen variables. The first theory is agency theory which suggests that board diversity can increase board independence, improve executive monitoring and thus improve market value (Kesner, 1988; Lincoln & Adedoyin, 2012) (Abdullah, 2014). Board diversity enhance and increase variety in ideas, skills, creativity, knowledge, and innovation in boardrooms, abilities to cope with organizational external environment and more effective decision-making process for better firm performance (Baranchuk & Dybvig, 2009; Bart & McQueen, 2013; Lückerath-Rovers, 2013). Secondly, agency theory suggests larger boards are associated with a positive effect on corporate performance and higher managerial monitoring (Samaha et al., 2012), while others suggest that larger boards is associated with negative effect on financial performance, less coordination, communication, and more monitoring problems (Ntim, Lindop, Osei, & Thomas, 2015). From an agency theory perspective, blockholder ownership is associated with closer managerial monitoring, fewer agency problems, and improved firm performance (Botosan, 1997; Jensen & Meckling, 1976; Michael, 1993).

Board diversity helps firms to secure its resources as different backgrounds, skills, contacts, buyers, communities, suppliers and to have a link to the external

environment and improve opportunities through the board and in particular, the non-executive directors (Arnegger, Hofmann, Pull, & Vetter, 2014; Ntim et al., 2015; Westphal & Bednar, 2005) this also explains that larger boards size increases the variety of expertise, experience, knowledge (Jennifer & Roberts, 2010). This highlights the importance of resource dependence theory in this thesis. It also supports that blockholder ownership resources as sources of finance, contacts and contracts are important for firms to sustain operations (Branco & Rodrigues, 2008; Jennifer & Roberts, 2010). Resource dependence theory indicates that government ownership complies with corporate governance practices and can have more secure access to critical resources as finance sources that can improve firm performance (Branco & Rodrigues, 2008).

Both theories, agency theory and resource-dependence theory are used to examine the Revolution effect as explained as follows. It is important to reduce and control conflicts of interest to reach smoother decision-making process (Fama & Jensen, 1983a; Jensen & Meckling, 1976; Shleifer & Vishny, 1986) and maintain effective corporate governance mechanisms to encourage managers to work more efficiently (Chi & Wang, 2009; Jensen & Meckling, 1976; Kaplan & Minton, 1994; Kaur & Gill, 2007; Omran, 2009). This can be reached by agency theory. It helps to maximise performance and enhance the relationship between management and shareholders employment (Hoskisson et al., 2016; Pepper & Gore, 2012). All these characteristics help to cope with Revolution effects and enhance any negative consequences.

Resource-dependence theory is also used as a theoretical background for the Revolution effect on the relationship between ownership structure, corporate governance and firm performance. This can be explained because RDT is concerned with environmental and strategic uncertainty (Boyd, 1990; Pfeffer & Salancik, 1978b) to modify external economic environmental conditions by dealing with resources and information scarcity. The main demonstrates of the Egyptian Revolution were the youths, who are one of the important resources of any country and especially the firms. They have capabilities and new advanced ideas than the elderly managers which can be utilised to adopt new technologies and survive after a crisis like a revolution. Therefore, it creates linkages with the government through their boards to manage interdependence (Aharoni, 2000; Blumentritt & Nigh, 2002; Pfeffer &

Salancik, 1978a) and affect the firm's survival and performance to enhance resources usages and to cope with the Revolution demands.

Having discussed these theories and shown their effects on different ownership structures and some of the CG variables, the thesis goes on to review these variables in detail and shows the Revolution effect on them.

3.3 Empirical Literature Review and Hypotheses Development - Ownership Structure Types

3.3.1 Introduction

Corporate governance literature is a very wide field. One of its interesting developing topics is the relationships among ownership structure, corporate governance and firm performance. This has been an important topic of debate since Berle and Means (1932) formulated the thesis suggesting that a negative relationship could be observed between the diversity of shareholders and firm performance. On the other hand, (Harold Demsetz & Villalonga, 2001a) find that there is no significant relationship between these variables. The various circumstances facing firms, such as regulations, environmental stability and the economic scale on which they operate, are the main reasons that ownership structures differ across firms. These perspectives motivated the author to search further and add new findings, especially about the developing country of Egypt, to the existing literature.

The main objective of this thesis is to examine the relationship between firm performance and two aspects of Egyptian companies, namely, ownership structure and corporate governance, and whether they are affected by the Egyptian Revolution, an important event but not solely from the political view, and examining its effect will contribute to the relevant literature. Therefore, for the reader's clarity and understanding, the researcher classifies empirical studies covering these relationships into two main groups dealing with the main variables of interest in this thesis.

The first group addresses the association between firm performance and ownership structure. This is followed by a discussion of the different ownership-structure types, including block ownership, government/state ownership, institutional ownership and managerial/director ownership. Many studies about ownership structure consider developed countries, due to their different institutional, cultural, political, economic and social situations. Some developing countries, such as Egypt, Oman, Tunisia and Jordan, suffer from poor performance and a large concentration of ownership, due to frequent government interventions, weak and illiquid stock markets, weak legal

controls and investor protection and economic uncertainties (Ahunwan, 2002; Rabelo & Vasconcelos, 2002; Tsamenyi, Enninful-Adu, & Onumah, 2007). Corporate governance helps to raise investment rates, protect the minority shareholder's rights and encourage private-sector growth by supporting its competitive capabilities, helping to secure project financing, generating profits and creating job opportunities (Fawzy, 2003). It increases the ethical behaviour of managers in developing ownership structures and benefitting shareholders. Ownership structure affects the firm performance of listed corporations on the Egyptian Stock Exchange, as studies have shown (Abdel Shahid, 2003; Bolbol et al., 2003).

Boards are important for smoother organisational functions; therefore, this thesis discusses boards in-depth, including board size, board diversity and CEO duality. Boards are expected to provide access to resources, management monitoring to decrease agency costs, hiring and firing of management and strategic direction for the firm (Eisenhardt, 1989; Hermalin & Weisbach, 1998; Mayur & Saravanan, 2017; Nguyen, Rahman, Tong, & Zhao, 2015; Roberts, McNulty, & Stiles, 2005; Shleifer, 1998). Boards seek to protect shareholders' interests and to maintain managerial accountability leading to good firm performance (Hendry & Kiel, 2004; McIntyre, Murphy, & Mitchell, 2007)). A board member may acquire the position due to large holdings of the company's stock. Internal mechanisms include ownership structure, populated by the board of directors, the CEO and the chairperson. External mechanisms rely on the takeover market and the legal and regulatory system. The ownership type has an insignificant impact on stock-market performance measures because economic and market conditions affect that performance.

The second group addresses the association between firm performance and corporate-governance variables, followed by a discussion of the different ownership-structure types, including factors such as board size, CEO duality, board independence and board diversity. Corporate governance is one of the important variables throughout the thesis. It suggests that ownership structure is affected by cultural characteristics, geographical position, industrial development and the tax system (Pedersen and Thompson, 1997). Bad corporate governance is the reason for takeovers that enable outsiders to control the firm, due to the gap between potential and actual firm value. The legal system requires good corporate governance, positively associated with firm

valuation. This chapter continues this discussion in detail. First, the chapter discusses the ownership-structure types and related hypothesis development, then corporate-governance variables and related hypothesis development.

3.3.2 Block Ownership/ Family ownership

Blockholders represent shareholders who own extremely large amounts of company stock that create a block of stocks. Their voting rights can influence membership of the board of directors and improve the value of the firm (Edmans, 2009). Blockholders are external shareholders with at least 5% of the shares, but neither they nor their representatives are the chairman, chief executive officer, financial manager, another executive of the company or a relative of the person in such a position (Hope, Wu, & Zhao, 2017). OECD countries' ownership and control rights are examples of blockholder ownership. They are increasingly held by both financial and non-financial institutions that acquire the benefit of ownership concentration as a direct measure of corporate control (Xu & Wang, 1997).

Larger firms, industrial and manufacturing firms and those that operate in a less open economic environment show superior performance that could account for monopoly power not gained through greater efficiency. Firms with higher ownership concentration, nonmanufacturing firms and those with no separation between the CEO and chairperson positions (i.e. CEO duality) have a higher market value. Ownership concentration in Arab corporations is negatively related to legal protection because fewer restrictions on economic activity with more active stock markets correlate with less concentration of corporate ownership. Arab financial institutions have less ownership concentration than corporations in other sectors, due to sizeable foreign participation (La Porta et al., 1997). Another study, with a sample of 300 firms in Egypt, Jordan, Oman and Tunisia, covered manufacturing and nonmanufacturing industries, financial institutions and services, studying the determinants and the effects of ownership concentration on firm performance and market measures, as well as the effects of ownership identity and block holdings . It found that firm performance improves when the concentration of ownership merges owner and managerial interests. Jordan's ownership structure and concentration affect

firm performance because the ownership concentration is needed to decrease firm losses and increase performance. Government ownership has a negative relationship with firm performance, so it should be decreased through ownership concentration. Concentrated ownership is important for corporate governance when shareholder protection is inadequate and controlling shareholders to benefit from expropriating minority shareholders, this case in several emerging markets that have weak shareholder protections.

Another study supporting the positive relationship between firm performance and blockholder ownership shows this as well. Shahid (2003) investigated this ownership type and its effects on key accounting-performance indicators, such as ROA and ROE, and stock-market performance indicators, such as P/E and P/BV ratios, of the 90 most active listed Egyptian companies at the end of 2000. Her study indicates the conspicuous presence of concentrated ownership structure in Egypt, due to the dominance of socialism and central planning and the late industrialisation from 1952 to 1970. She found that in emerging markets, the value increases with increased concentration of control rights, in which shareholder protection decreases and the large investors exercise corporate governance. Blockholders use accounting information for their personal benefit. With the increasing share of ownership by large blockholders, other shareholders create an incentive to increase corporate performance and control management. Due to the block owners' interests and investments in the company, they are more active than other shareholders, which helps to achieve the goal of maximising return on investment (Oluku, 2017).

Examining and reviewing block ownership/concentrated ownership includes discussing family ownership to present a full image of this ownership-structure type. Family firms are 'those in which the founder or a member of his or her family by either blood or marriage is an officer or director, either individually or as a group' (R. Anderson, Mansi, & Reeb, 2003). At least one family member other than the co-founder is an owner, manager or board member. The relationship between family ownership and firm performance throughout the literature is mixed. That positive relationship is explained in the following part.

Agency theory and resource dependence theory suggest that family ownership is positively related to superior performance. Agency theory predicts a positive relationship between the value of the firm and family management (Villalonga & Amit, 2006), from the perspective of the importance of sustainability for future generations, which may involve a long-range orientation towards promoting effective governance and long-term investment (D. Miller & Le Breton-Miller, 2006). Furthermore, close relationships between family members may reduce shareholder/manager conflicts and encourage the stewardship orientation that reduces agency costs (Chrisman, Chua, & Sharma, 2005; Katou, Budhwar, Woldu, & Al-Hamadi, 2010). The viewpoint of the resource-dependence theory includes the concept of family capital, suggesting that family firms have advantages in terms of social, human and financial capital through family relations (Mirza, Akhtar-Danesh, Noesgaard, Martin, & Staples, 2014). Family ownership contributes positively to firm performance under some circumstances, as when there is strong protection for minority shareholders, when belief in the independence of the legal system prevails and when family businesses operate in contexts that avoid relatively strong uncertainty (Dow & McGuire, 2016).

As founders tend to focus on growth and performance objectives, principal-principal agency problems are relatively few (Miller et al., 2007, 2011) where founder and family-owned firms exclude each other. By contrast, family owners may have broad socioemotional goals, such as maintaining the family's reputation for good business and hiring family members, which create principal-principal conflicts for nonfamily shareholders (Deephouse & Jaskiewicz, 2013). Both owners influence strategies, corporate governance and performance of the firms. These influences are important in showing that owners have very different goals with different consequences for shareholders, employees and other stakeholders. They also differ in influencing CEO compensation and its link to firm performance (Jaskiewicz et al., 2017). Firm founders increase the firm value and add unique skills to the firm, while descendants decrease firm performance—perhaps because they get the CEO position through family relations rather than their job qualifications, which explains differences between young and old managers. Founder-family CEOs can provide value-enhancing, innovative, special-skills expertise to the firm, which outside managers do not offer (Morck et al., 1988).

Compared with nonfamily firms, family firms have less divergence of interests from shareholders and bondholders, which explains why family firms have lower costs of debt than nonfamily firms. The family founder monitoring and controlling the firm enhances operating performance and generates more cash flows to meet debt obligations. Placing one of the founding family's members in the CEO position influences agency conflicts by enabling families to closely align the firm's actions with their own interests, reducing their agency costs compared to family firms with outside CEOs or nonfamily firms. Family members' presence in the firm creates a powerful reputation that improves firm performance due to its motivations for family managers. External organisations, such as providers of capital or suppliers, dealing with old family firms are more likely to deal for longer periods with the same governing bodies than occurs with nonfamily firms (R. Anderson et al., 2003). Chen et al. (2005) provide evidence of poor alignment between managerial incentives and shareholder interests at low levels of family ownership, as well as evidence of managerial entrenchment at higher levels of family ownership. Accordingly, family ownership differs between young and old family firms (firm age less than 50 years and greater than 50 years, respectively); both have stronger and better firm performance than non-family firms. Founding families are concerned with their own interests and benefit themselves through their incentives, power and maximising their personal utility, which negatively affects firm performance, productivity and employee effort (Burkart, Gromb, & Panunzi, 1997).

The literature also shows the negative effects of family ownership. Family-controlled economies are less developed, and throughout the 19th century, the predominance of family firms caused poor performance, as they are more interested in survival and succession than in growth and innovation (Bodnaruk, Massa, & Yadav, 2017). Families can gain and are interested in their own wealth, which can influence the expansion plans for the firm's capital and lead to poor operating and stock-price performance (DeAngelo & DeAngelo, 2000). Those firms can also provide a competitive advantage, as their wealth is linked to firm welfare, and families can use their incentives to monitor managers and minimize the free-rider problem related to small shareholders.

To summarise, blockholders' influence on the company and concentrated ownership is important for corporate governance in emerging markets that have weak shareholder protection. They improve performance and decrease firm losses by increasing the concentration of control rights and voting rights, especially when ownership and managerial interests align and merge through concentration of ownership. The author concludes that blockholder ownership is more active, due to the interests and investments that help to achieve its goal of maximising block members' wealth. As the share of blockholders increases, corporate performance and control management increase. The presence of this ownership-structure type in Egypt was due to the power of socialist central planning and late industrialisation, which have changed in recent years. Firm performance in Egypt and other Arab countries was found to improve through ownership concentration and merging ownership and managerial interests. Another reason for its presence in emerging markets is weak and inadequate shareholder protections, while fewer economic restrictions and more active stock markets decrease block ownership. The strong presence of concentrated ownership structures in Egypt is not the case over the last few years that this thesis addresses.

Family firms are interested in survival, succession and maintaining the family's reputation to ensure sustainability for future generations, promoting motivation, effective governance and long-term investment and predicting a positive relationship between firm performance and family management. Close relationships between family members reduce conflicts, different goals and agency costs (agency theory); enhance family capital through family relations (resource-dependence theory); protect minority shareholders; increase independence; avoid strong uncertainty and reduce the cost of debt and debt obligations by enhancing operating performance and generating cash flows. Family ownership may also decrease firm performance, as the CEO position is filled through family relations rather than job qualifications. Most of the previous literature suggests that block ownership has a positive effect on firm performance for reasons cited, but interestingly, a negative relation was also found that was due to the predominance of family firms. Furthermore, to search if this ownership type still has a positive effect or is it changed in recent year after Shahid's study in 2003 and especially if the Revolution has an impact on it.

This is the first type of ownership structures creating the first sub-hypothesis of the first hypothesis suggesting that ownership structures have different effects which will be explained throughout the chapter. Based on these arguments, the following hypothesis is set as follows:

Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance

Hypothesis 1a$_1$: There is a positive relationship between block ownership and firm performance before the Revolution.

To the author's best knowledge, this is the first thesis to examine the impact of the Egyptian Revolution on the relationship between block ownership and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan, Ntim, & Al-Najjar, 2019), the next hypothesis was developed and therefore, the author hypothesises that block ownership will eventually cease to exist after the Revolution than pre-revolution based on the following.

Hypothesis 1a$_2$: There is a negative relationship between block ownership and firm performance after the Revolution.

Family or block ownership will not be able to survive or success after the Revolution due to the financial losses that will happen. There will be more protection for shareholders and companies will avoid any bad management as having CEO positions which are filled through family relations rather than job qualifications or to have concentrated control or voting rights or to maximise block members' wealth.

3.3.3 Government/ State Ownership

Government involvement in business gained global concentration during the period 1900–1970, the last few decades before the crisis of 2008, which led to large-scale privatisation and a general decline of government intervention in firms in developed countries (The Economist 2012). Accordingly, it was important to seek information on Egypt's government and its relationship with Egyptian-firm performance. Government ownership can include direct ownership of firm equity, the most visible possibility, or indirect support through credit guarantees, subsidies and tax credits (LI, SUN, & ZOU, 2009). Therefore, state or government ownership identifies firms in which the government has a significant equity stake. Since the state owns and controls the company, the government intervenes for political reasons disguised as social policy. Government ownership plays an important role in shaping corporate governance and firm performance, by helping to determine the government's role in implementing and enhancing CG practices and reporting quality.

Government ownership stands in two different relationships with performance. First is a negative relationship between firm performance and government ownership, due to the lack of minority shareholder protection. Government ownership is often characterised by the waste of resources, political intervention, human-capital problems and lack of incentives (the main reasons for inefficiency), state-owned-enterprise weakness and recognition of its political nature. Some bureaucratic levels exercise ownership rights, and individuals do not have the right to transfer ownership or direct claim to their residual income without clear directions and incentives to improve the company's performance (Ullah, 2016). Another study exploring this negative effect and the highest percentage of government-owned firms in the Arab environment focuses on Saudi Arabia's high percentage of shares in the country's publicly listed companies (PLCs), due to the tendency towards privatisation and investment of treasury funds in listed companies.

This thesis investigates the government's pressure on companies to implement government objectives at the expense of shareholder objectives and maximising profit. Independent directors try to minimise the agency problem between shareholders and strong management and have strong incentives to monitor management and provide quality information that results in an effective monitoring

system. Government ownership has the power to weaken the directors' independence through government interference in director selection (Al-Janadi, Abdul Rahman, & Alazzani, 2016). Additional studies contribute to the research on government ownership and the value of European firms during the global financial crisis (2008–2009). In short, during the crisis, governments easily expropriated the firms they controlled, due to weak institutions and poor investor protection. At the same time, the government-ownership benefits decreased and, with them, firm performance, compared to firms without government ownership (Beuselinck, Cao, Deloof, & Xia, 2017). Considering firm performance an internal impact and firm value an external impact, a negative relationship forms between state ownership and its property (i.e. the impact of state ownership on firm performance) and the effect on establishing the firm's market value. Government ownership reduces corporate value, due to political interference (Tian and Estrin, 2008). Firm profitability correlates negatively with the proportions of state shares and tradable shares held by individuals. The negative relationship between firm performance and government ownership was supported by bad management, one of the reasons for low performance and bankruptcy (Zeitun, 2009). Bremer and Elias (2007) examine corporate governance development in Egypt and conclude that several factors hide the course of its development. Family-owned or closely held corporations control the Egyptian private sector, and state-owned enterprises play a major role in the Egyptian economy, so Egypt has a new and thin capital market and weak economic structure, as well as a lack of board independence and awareness of corporate-governance concepts and benefits. Privately held firms are more efficient and more profitable than publicly held firms (Bolbol et al., 2003).

The second relationship between government and firm performance is the positive relationship motivated by the government's long-term orientation towards providing funding across the business cycle. This presents some benefits, such as helping firms to cope with external uncertainties, facilitating access to financial resources and providing obvious guarantees to secure debt financing (Agrawal & Knoeber, 2001; Faccio, 2006; Hillman, Withers, & Collins, 2009). The government's commitment secures the firm in times of economic distress, minimising the risk of default, allowing firms to take on more risk and increasing the government-owned firm's value (Boubakri, Cosset, & Saffar, 2013). Countries with high income usually have high budget surpluses that make it easier to invest in companies, increasing

government ownership. One of the important examples is China, with one of the highest percentages of state-owned enterprises in the world. Directly or indirectly, the state has a controlling stake in nearly one-third of the listed Chinese companies (Hope & Vyas, 2017). Xu and Wang (1997) investigate the relationship between ownership structure and the performance of publicly listed companies in China and find that ownership structure has significant effects on the performance of stock companies. The positive and significant correlation between ownership concentration and profitability is stronger for companies dominated by legal-person shareholders than for state-dominated firms.

Other examples include the most profitable Egyptian firms with the largest presence of government, compared to those in Jordan, Oman and Tunisia, as the Egyptian companies have the largest market capitalisations and deeper stock-market penetration. Tunisia has the largest foreign participation in firm ownership (Bolbol et al., 2003). Others believe that corporate-governance practices may be irrelevant to performance, whereas bad practices may be more strongly related to underperformance. Company performance supposedly is better with a government-ownership structure and a positive relationship between state ownership and firm performance, due to the government's administrative manipulation and financial support. State ownership also affects the relation between firm performance and firm value (Ab Razak, Ahmad, & Aliahmed, 2008; Le & Chizema, 2011).

Thus, government ownership includes types comprising equity or indirect support, its role in shaping and implementing corporate governance and its positive and negative relationships with firm performance. The author concludes that the reasons for having government ownership are the tendency toward privatisation, investing capital funds in companies (especially countries having high income and high budget surpluses) and weak institutions and poor investor protection, as during the financial crisis. The negative relationship is due to the lack of minority-shareholder protection, waste of resources, political intervention, bureaucratic levels of ownership rights, government's pressure on companies to implement government objectives, weakening of the directors' independence, human-capital problems, lack of incentives, state-owned enterprise weakness, bad management and being politicised, resulting in inefficiency and negative impact on firm performance. On the other hand, the author finds that the positive relationship is due to government's long-term provision of

funds, facilitating financial-resource access, market capitalisations, stock-market penetration, coping with external uncertainties, providing guarantees to secure debt financing, minimising the risk of default during economic distress, allowing firms to take on more risk and increasing the government-owned firm's value. As the main concern is Egypt's emerging market, about which previous studies show mixed findings— some positive and some negative—it is interesting to analyse and conclude the appearance of negative or positive relationships in recent years. Based on these arguments, the following hypothesis is set as follows:

Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance

Hypothesis 1b$_1$: There is a positive relationship between government ownership and firm performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between government ownership and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that firms will need government support to recover after the Revolution than pre-revolution based on the following.

Hypothesis 1b$_2$: There is a relationship between government ownership and firm performance after the Revolution.

Some companies will need the government's long-term provision of funds to recover from what happened during the Revolution. It also helps to protect shareholders and investors rights. Government ownership can be used to cope with external uncertainties, to minimise the risk during the Revolution, and to have access for financial-resource.

3.3.4 Institutional Ownership

Institutional ownership is a major force in capital markets and is rapidly expanding in developing countries. Institutions are expected to monitor managers and have higher monitoring incentives, due to institutional characteristics such as shareholding concentration, firm-management independence and long investment horizons (Brickley, Lease, & Smith, 1988; Bushee, 1998; H.-L. Chen & Hsu, 2009; Hartzell & Starks, 2003; Shleifer & Vishny, 1986). (Shleifer & Vishny, 1986) state that large-institution shareholders play a significant role in corporate governance. Institutional investors have access to inside and management information, and they may depend more on direct monitoring than on accounting numbers (Carleton, Nelson, & Weisbach, 1998; Prendergast, 2002). Developing and improving the performance of investee companies requires encouraging the development and improvement of the investment environment and increasing privatisation, in order to avoid mismanagement of enterprises, lower accounting standards, loss of investor-protection systems and, more importantly, to allow institutional investors to become owners, control with long-term investment strategies and reduce government ownership in some countries where it exists at high percentages. Investors can reap the monitoring benefits through long investment horizons that allow them to remain as shareholders. Shareholding concentration increases the influence of investors over managers and the gain from monitoring them. Dependent investors, unlike independent investors, like to have long-term business relationships with the firm, which help them to maintain direct access to the managers of the firm and depend less on accounting information (Ramalingegowda & Yu, 2012). These investors—mutual funds, social-security funds, insurance companies, brokerage dealers and qualified foreign institutional investors (QFIIs)—affect corporate managers' monitoring role, such as voting initiatives and board selection, which align the firm interests with executive compensation, increase future operating performance and increase shareholder wealth (Hartzell & Starks, 2003; La Porta et al., 1997; Larcker, Richardson, & Tuna, 2007; Smith, 1994). Institutional ownership is classified as pressure insensitive and sensitive. Insensitive institutional ownership is a percentage of the total shares held by mutual funds and QFIIs. Pressure-insensitive institutions monitor and face management more than pressure-sensitive institutions, having a more positive impact on corporate performance than a sensitive institutional

investment that does not seem to generate such an effect (Firth, Gao, Shen, & Zhang, 2016). Sensitive institutional ownership is the total number of outstanding shares, expressed as a percentage held by such institutions as insurance companies, social-security funds and broker-dealers.

Institutional investors are also classified as domestic or foreign institutions, depending on their geographic origin. Domestic institutional ownership is the percentage of the total number of outstanding shares held domestically. Foreign institutional ownership is the percentage of the total number of outstanding shares held by foreign institutions. The active-monitoring view (active institutional investors) shows that institutional investors have representation on boards of directors and can supervise and monitor investee firms actively, reduce information asymmetries, avoid agency problems, maximise shareholder value and enhance firm performance by providing funding, using their relationships to help the firm source financing and applying their highly developed managerial skills, substantial resources, professional knowledge and voting rights to influence managers to improve both firm efficiency and corporate governance. They are long-term-oriented and focus on long-term performance. Pressure-insensitive, foreign and large institutional shareholders have a more positive relationship with firm performance than pressure-sensitive, domestic and small institutions (Lin & Fu, 2017). In firms where shareholders are institutions, the ownership structure can generate an economic incentive, enhance performance and corporate policy and create an opportunity for active shareholders. Firms monitored by institutional investors achieve better performance because institutions have the experience to manage at lower cost than is possible for individual shareholders (Shleifer & Vishny, 1986). The negative relation between firm performance and voting power suggests that distributing voting power in an equal way among the largest institutional stakeholders will have a positive effect on firm performance (Bhattacharya & Graham, 2009). Grossman and Hart (1980) declare that the free-rider problem is the reason that small individual shareholders in China do not monitor the management well, because they have no incentive and no capability to monitor and influence the management's behaviour. Individual shareholders are insignificant for firm profitability. Alternatively, the passive-monitoring view suggests that institutional investors are short-term traders with short-term performance preferences, who act as passive observers, do not interfere in management and trade shares to

speculate on short-term profits based on informational advantages or to satisfy personal-portfolio needs, rather than to improve corporate governance and firm performance. Therefore, there is no relationship or, at most, a weak one between firm performance and institutional ownership (Brickley et al., 1988; Victoravich, Xu, & Gan, 2012). Institutional investors might constrain the research-and-development activities that prevent firm growth, and accordingly, they increase short-term instead of long-term financial performance (Bushee, 1998; Coffee, 1991).

Additionally, the exploitation view demonstrates cooperation between institutional investors and firm managers to exploit small shareholders and weaken firm performance. They may overlook management fraud if it could benefit them, indicating a negative relationship between firm performance and institutional ownership (Elyasiani, Jia, & Mao, 2010). Weakening the insider control could enhance firm performance; the greater the insider ownership is, the poorer the firm performance will be, as insiders can be more entrenched and have sufficient power to expropriate wealth from minority shareholders. Insiders can also reduce agency costs through efficient alignment of management and shareholder interests. Passive investors and those who are pressure sensitive prefer to strengthen the business relationship with the firms in which they invest, and active investors and the pressure insensitive need not strengthen this kind of relationship because they can access the research materials and more sophisticated resources by themselves.

This ownership type is expanding in developing countries, motivating the author to include it in this thesis about Egypt and to understand the different institutional types. There are several possible explanations for this ownership type. Institutional ownership involves voting initiatives and board selection to align the firm's interests with executive compensation and increase future operating performance and shareholder wealth. It has different relationships with performance. Institutional investors have the experience to manage at a lower cost than individual shareholders. The positive relation between pressure-insensitive, foreign and large institutional shareholders reflects pressure-insensitive institutions monitoring and facing management and active institutional investors reducing information asymmetries, reducing agency problems, maximising shareholder value, providing funding, using their relationships to help the firm source financing and applying their highly

developed managerial skills, substantial resources, professional knowledge and voting rights to influence managers. Pressure-sensitive, domestic and small institutions have a weaker relationship with firm performance. The exploitation view demonstrates cooperation between institutional investors and firm managers by exploiting small shareholders and weakening firm performance. They may overlook fraud if it could benefit them, indicating a negative relationship between the variables. The passive-monitoring institutional investors have no relationship or a weak one with firm performance, as they have short-term performance preferences, do not interfere in management and trade shares to satisfy personal-portfolio needs. In the Arab environment, Saudi Arabia shows the negative effect of government ownership due to privatisation and investment of treasury funds in listed companies. Government interference in director selection weakens the directors' independence. Family ownership in Egypt hid government ownership development for a certain period, discussed later in this thesis. Stock-market penetration and market capitalisations are reasons for the presence of government ownership. Based on these arguments, the following hypothesis is set as follows:

Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance

Hypothesis 1c$_1$: There is a positive relationship between institutional ownership and firm performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between institutional ownership and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that institutional ownership will improve after the Revolution than pre-revolution based on the following.

Hypothesis 1c$_2$: There is a relationship between institutional ownership and firm performance after the Revolution.

Institutional ownership through its managers can use their relationships as financing sources and their highly developed managerial skills to overcome Revolution impact. Institutions can monitor managers in a better way, have higher management independence and have access to inside and management information which will help to improve firm performance.

3.3.5 Managerial/Director Ownership

Managerial ownership, or so-called equity ownership, is the equity percentage owned by insiders and blockholders, where insiders are the firm's officers and directors, and insider ownership is the fraction of shares held by officers and BOD (Ruan, Tian, & Ma, 2011). In other words, managerial ownership is the percentage of shares owned by the company's management who participate actively in corporate decision-making. BOD must work effectively, accurately and quickly and act independently in decision-making processes, motivated by good board composition and with full integrity and the experience and the skills to carry out their duties. BOD is responsible for generating profitability, ensuring the company's sustainability and reporting results at the General Meeting of shareholders. Accordingly, the board of directors plays a prominent and decisive role in setting the strategic goals of the corporation and approving the general strategies and policies that dominate the workflow (Herdjiono & Sari, 2017). Therefore, the decisions that the board of directors makes have a significant effect on the performance of any corporation. The rules of corporate governance focus heavily on several issues related to the formation of the board of directors and the way it runs the corporation, maintains its assets and enlarges the wealth of its shareholders.

The board of directors runs the corporation according to an authorisation from the general assembly (Desoky & Mousa, 2012). Therefore, the ultimate responsibility for the corporation remains in the hands of the board, even though it forms committees or delegates other bodies to take over some of its work. Although the board of directors consists of representatives selected from different groups of shareholders, an appointed member on the board of directors should consider himself/herself a

representative of all the shareholders and committed to doing anything that fulfils the interest of the corporation in general, not just the interest of the group he represents or the group that voted on his appointment to the board in the first place (Ang, Cole, & Lin, 2000; Desoky & Mousa, 2012). Therefore, the board of directors has three main functions. They provide the CEO by the required information to optimise the managerial decisions, to obtain additional resources to help the firm in achieving its aims through external parties and to monitor the CEO's decisions to ensure they align with the shareholders' interest (Guest, 2008; J. Johnson et al., 1996). Firms have many opportunities to set rules for voting and election of the board of directors, their duties and responsibilities and their effectiveness. This may lead to shareholder difficulty in exercising any influence or control over managers. The corporate value affects ownership structure, but not vice versa, and a significant relationship exists between insider ownership and corporate value (Cho, 1998; Morck, Shleifer, & Vishny, 1988).

The literature regarding the relationship between managerial ownership and FP presents different arguments. (Ang et al., 2000) studied the relationship between agency cost and ownership structure, finding a negative relationship between agency cost and managers' ownership shares but a positive relationship with nonmanager shareholders. A nonmanager shareholder is an owner who provides capital to the corporation but is not involved in the firm's management and has no managerial responsibility (Colombo, Croce, & Murtinu, 2013). The relation between insider ownership and corporate value is mixed and inconclusive. The level of insider ownership increases firm performance, but that performance decreases after ownership reaches a certain level (J. Chen, Ezzamel, & Cai, 2011). The following sections show and discuss these relationships further.

When ownership and management are separate, managers who hold a small equity percentage use their private benefits to control the firm, creating a disadvantage for investors. High managerial ownership within the board of directors—the centre of company control, with fundamental responsibility for the health and long-term success of the company—determines the company strategy that affects its financial performance and reduces agency conflict (Coles et al., 2008). According to agency theory, increasing managerial ownership causes management to work harder to

improve performance because the shareholders, whose wishes they are responsible for fulfilling, include themselves, and their interests align with those of other shareholders. Accordingly, their preferences for implementing management policies change, influenced by the quality of the firm's corporate governance. This supports the concept of positive-psychology capital, namely, that the development of employee self-efficacy, optimism and flexibility contributes to strengthening the participatory attitudes among workers that enhance the organisation's efficiency (Bożek, 2015; Denis & McConnell, 2003). Other authors support this positive relationship between insider ownership and firm value (Mehran, 1995; Wruck, 1989). Drakos and Bekiris (2010) investigated the relationship between board ownership and FP, finding that when board ownership is treated as endogenous, managerial ownership has a positive impact on FP. If interests converge between insiders and shareholders (convergence of interest effect), firm performance will improve. Insiders' stock holdings are strong motivation to enhance firm performance.

Alternatively, managerial ownership also negatively impacts performance (Andow & David, 2016). Entrenchment theory predicts that firms with higher managerial ownership will have worse firm performance. When managers' shares increase, their entrenchment separates their interests from those of other shareholders, and they have incentives to enjoy private benefits of controlling the firm that are detrimental to investors, then firm performance should decline (Tanaka, 2016). At higher levels, managerial ownership makes management less subject to market discipline and more entrenched; thus, corporate value decreases. Accordingly, their significant voting power will influence their positions out of concern for their own interests, affecting corporate performance negatively (Fama & Jensen, 1983b). A large proportion of board ownership either negatively influences firm performance or no significant positive association exists, as previous studies show (Cho, 1998; Craswell, Taylor, & Saywell, 1997; Harold Demsetz & Lehn, 1985; Hermalin & Weisbach, 1998).

A different result shows that managerial ownership does not affect financial performance (Din & Javid, 2011). Demsetz and Villalonga (2001) found no statistically significant relation between board ownership and FP. They examined two dimensions of this structure likely to represent conflicting interests, namely, the fraction of shares that management-owned and the fraction of shares that the five

largest shareholding interests owned. They also differentiated between managerial and board ownership, one measured by the proportion of the shares owned by the present CEO and all former CEOs still on the board, the other by the percentage owned by firm directors from outside the company. Omran's (2009) study in Egypt reports that the separation of those two positions has no significant impact on firm performance, comparable to other studies (Brickley, Coles, & Jarrell, 1997; Vafeas & Theodorou, 1998). Desoky and Mousa **(**2012) investigated the effect of board ownership and characteristics on firm performance of the most active listed Egyptian companies on the EGX at the end of 2010. They also examined the relationship between board characteristics as an important mechanism of corporate governance and FP. They found that measuring FP by ROA supports the argument that a nonlinear relationship may exist between board ownership and FP. Internal control and firm performance can be improved by separating the CEO and the chairperson positions.

A summary follows of managerial ownership and BOD importance and roles and the various mixed arguments from the literature concerning the relationship between managerial ownership and FP. The convergence-of-interest effect and agency theory support the positive impact on firm performance. The managerial ownership shareholders achieve their own wishes because they align with those of other shareholders, influencing the quality of corporate governance and leading to better firm performance. Conversely, the entrenchment theory shows the negative impact as an increasing number of shares separates their interests from those of other shareholders, as managerial owners enjoy private benefits of controlling the firm with significant voting power and ignoring market discipline, exerting a negative effect on firm performance. The separation and differentiation of managerial and board ownership results in no statistically significant relation with FP, due to the conflicting interests of managers who are former CEOs still on the board and the shareholders who are outside directors.

The literature review reflecting the mixed and inconclusive relationship between managerial ownership and firm performance encouraged the author to include it in the selected sample, to examine whether the nonlinear relationship found in Egypt still applies or changes to show positive or negative significant relations relevant to the fifth hypothesis. Throughout the literature, this type of ownership is found to have no

significant impact on firm performance in Egypt when there is a separation of the CEO and the chairperson positions. A discussion of this point follows, to learn whether it has had the same result in recent years. Based on these arguments, the following hypothesis is set as follows:

Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance

Hypothesis 1d$_1$: There is a positive relationship between managerial ownership and firm performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between managerial ownership and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that managerial ownership will improve after the Revolution than pre-revolution based on the following.

Hypothesis 1d$_2$: There is a relationship between managerial ownership and firm performance after the Revolution.

BOD and management of managerial ownership can improve performance by fulfilling their own interests and aligning them with those of other shareholders. They can easily change policies and strategies and have good corporate governance quality due to their relationship with the shareholders.

The various forms of ownership have their own advantages and drawbacks, due to their different effects on performance. This thesis provides a broad and important contribution with evidence of corporate-governance characteristics, which the next section explains in detail.

3.4 Empirical Literature Review and Hypotheses Development - Corporate Governance Variables

3.4.1 Board Size

Board size is an essential variable impacting corporate governance, defined as the total number of directors in a firm, including executive, non-executive and independent directors (Elsayed, 2009; Kyereboah-Coleman & Biekpe, 2006; Mayur & Saravanan, 2017). It plays a significant role in developing countries and emerging markets. A board of directors is responsible for the firm's performance, its management, decision-making and strategy determination, and board size is associated with agency problems. A larger board of directors taking opportunistic action and making effective, precise and quick decisions reduces agency conflicts (Herdjiono & Sari, 2017).

Several studies have tested the implications of board size for firm performance, covering countries such as the U.S. (Yermack, 1996), Denmark (Bennedsen, Kongsted, & Nielsen, 2008), the UK (Guest, 2008) and Japan (Nakano & Nguyen, 2013). These studies detect a significant negative impact, found to be stronger in small firms. Large boards are less profitable and associated with higher operating costs that enable investors to assign lower values to such firms. They offer higher CEO compensation that depends on the firm's balance sheet, unrelated to firm performance. Other authors agree with the negative effect (Fama & Jensen, 1983a; Haniffa & Hudaib, 2006; Hermalin & Weisbach, 1998, 2001; Michael, 1993; Pye, 2000). These studies reported a negative relationship between board size and firm performance where CEO duality exists (Belkhir, 2009; Bozec & Dia, 2007; Kiel & Gavin, 2003). They find that in the presence of CEO nonduality, board members are the main source of effective governance mechanisms and stronger CEO performance, associated with higher market values. Larger boards make decisions less efficiently than smaller boards because free-rider and coordination problems weaken decision-making procedures of the large boards, the reason for the poor performance. Zabri et al. (2016) also reveal a negative relationship between the size of the board of directors and ROA, which also appears to be negative when measured by return on equity

(Nguyen et al., 2015). The effect of board size on performance, when measured by Tobin's Q, appears to be positive, without controlling industry effects (Henry, 2008).

Examining the relationship between board size and FP is inconclusive. Large boards offer required resources and capabilities, explaining their positive impact on firm performance. However, they can also have a negative effect due to communication, coordination and decision-making problems that offset the benefits of the collective knowledge of the board members (Mayur & Saravanan, 2017). (Michael, 1993; Yermack, 1996) conclude that companies with oversized boards tend to become less effective, whilst having a small board enhances the company's performance and positively influences investor behaviour and company value. Board sizes have different effects on firm performance; these are good for firms, but when board size increases beyond a certain limit, the advantages change to disadvantages and accordingly lead to worse firm performance (Lipton & Lorsch, 1992; Michael, 1993). Large boards are useful for discussion in meetings that will affect the firm performance in a positive way. Small boards help to hire independent directors by using their connections and experience, which improves performance (Al-Najjar, 2014).

The board is one corporate-governance mechanism, and agency theory reflects the board's role in protecting shareholder interests with strong firm performance. Coles et al. (2008) explain that the greater the demand and the more effective external relations are, the greater is the need for a large board. The number of directors and firm performance has a positive association (Belkhir, 2009; Issarawornrawanich, 2015). Larger boards have greater information-processing capacity than smaller boards, simply as a function of the division of labour and large-team ability to mobilise information and resources. Firms add more board members to react to increasing environmental complexity (Seo, 2017). The studies of John and Senbet (1998) and Kiel and Nicholson (2003) show that the board's ability to monitor important corporate decisions increases with its size, which affects the efficiency of the board-control function. Some authors suggest that this is a positive relationship, such that when the board size is larger, performance is better (Adams and Merhan, 2005; Dalton and Dalton, 2005). Large firms may require new, specialised board members or large numbers if they seek to grow in order to increase firm performance. A

positive relationship exists between board size and firm performance in the presence of CEO nonduality that separates decision management and decision control, reduces agency costs, enhances discussion and, accordingly, increases decision-making efficiency (Elsayed, 2010). Other authors also support this positive relationship (Bohren & Odegaard, 2001; Conyon & Peck, 1998; De Andres, Azofra, & Lopez, 2005; T. Eisenberg, Sundgren, & Wells, 1998; Huther, 1997; Postma, Van Ees, & Sterken, 2001; Yermack, 1996). Firms that have smaller boards have stronger financial ratios, higher market values and stronger CEO performance than firms with larger boards. Therefore, the size of the board of directors plays a role in improving corporate performance and reducing agency conflicts that occur in the company. Coles et al. (2008) show that the size of the board of directors affects financial performance. The larger the size of a company's board of directors, the better will be the company's performance, through directions for specialisation, increased expertise and greater monitoring capacity (Dalton, Daily, Johnson, & Ellstrand, 1999; Klein, 2002). This result proves that the higher the number of board members in the company, the more financial performance improves—results consistent with those of Coles et al. (2008).

Walczak (2013) concludes that the behaviour of members has a decisive impact on the mechanisms of corporate governance. The board of directors in a company can also determine the strategy the company adopts, both long term and short term, which may affect its financial performance and reduce agency conflict. A different conclusion was drawn by (Horváth & Spirollari, 2012; Yilmaz & Buyuklu, 2016), namely, that a board's size does not have a significant effect on firm performance. So, good or poor performance depends on the ability of the board of directors to carry out its duties. Increasing the number of directors makes more persons available to supervise the managers in the implementation of the company's business and ensure that the managers follow the interests of the council.

Having discussed the impact on corporate governance and its roles, a conclusion emerges that different board sizes and duties have different effects and can change advantages to disadvantages, which explains why examining the relationship between board size and FP is inconclusive regarding how it affects corporate governance. This inclusive relationship is very interesting to test in Egypt, especially regarding the

effect of the revolution. A summary of reasons for the positive impact of a large board on firm performance, especially improving corporate performance, includes bringing resources and capabilities, greater information-processing capacity, resource mobilisation, response to environmental complexity, board control-function efficiency, usefulness for discussion in meetings, specialised directions, increased expertise and greater monitoring capacity and, when CEO nonduality exists, reducing agency cost, enhancing corporate discussion and, accordingly, increasing decision-making efficiency. The small boards also improve FP because, with their connections and experience, they help in hiring independent directors and lead to stronger financial ratios and higher market values. FP measured by Tobin's Q relates positively to board size. The negative effect is a consequence of offering higher CEO compensation, the existence of CEO duality and higher operating costs that let investors assign lower firm value, due to problems in communication and decision-making weakened by free-rider and coordination problems. Measuring firm performance by ROA and ROE shows this effect. Other factors show no significant effect on firm performance.

This is the first type of internal corporate governance mechanism variables creating the first sub-hypothesis of the third hypothesis suggesting that these variables have different effects which will be explained throughout the chapter. Based on these arguments, the following hypothesis is set as follows:

Hypothesis 2: There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance.

Hypothesis 2a$_1$: There is relationship between board size and financial performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between board size and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that board size

will have a significant effect on firm performance after the Revolution than pre-revolution based on the following.

Hypothesis $2a_2$: There is a positive relationship between board size and financial performance after the Revolution.

Larger board size can bring more resources and capabilities to generate more revenues and greater performance after the Revolution. They have a greater information-processing capacity which is useful for discussion in meetings and increase decision-making efficiency. These characteristics are needed to cope with the changes that happened during the Resolution and after it.

3.4.2 CEO Duality

One of the most debated issues in corporate finance, academia, the business community and discussions of corporate governance is CEO duality and its effect on firm performance. CEO duality occurs when the CEO also occupies the chair position on the board of directors (Rechner and Dalton, 1991). In other words, a single individual works as CEO and board chair. When it happens, executives focus more on their personal interests than on the shareholders' interests (Iyengar & Zampelli, 2009; Oak & Iyengar, 2009). The board size and corporate performance relationship is confused by the board leadership structure that includes CEO duality (the roles of both CEO and chairman reside with the same person) or nonduality (assigning the two positions to different people, dividing the CEO and chairman roles). Unsurprisingly, many researchers call for the separation of the CEO and chair positions (CEO nonduality) to enhance board effectiveness (Finkelstein, Hambrick, & Cannella, 2009). CEO nonduality causes a positive relationship between board size and corporate performance while in the presence of CEO duality, the relationship is negative. One previous study adopts the agency theory to investigate and focus on board of directors characteristics with CEO duality, showing its impact on the performance of family and nonfamily firms in Italy (Rubino, Tenuta, & Cambrea, 2016). Agency theory represent two different perspectives on discussing and explaining the relationship between CEO duality and firm performance.

Agency theorists highlight the negative effect of CEO duality on firm performance, as it allows the CEO to emphasise his or her personal best interests and depart from shareholder interests (Fama & Jensen, 1983a; Jensen & Meckling, 1976). This divergence of interests correlates with CEOs increasing their own interests and decreasing shareholders' interest and value (Michael, 1993). Giving the CEO an influential role on the board will help to avoid this agency problem and combine control and power, preventing the board from efficiently monitoring and controlling decisions (Agrawal & Mandelker, 1990; Yermack, 1996). This negative relation is a result of such reasons as high CEO compensation and high cost to replace the CEO (Boyd, 1995; Hermalin & Weisbach, 1988). Therefore, CEO duality negatively affects performance, consistent with agency theory, due to the chairman-CEO's control and monitoring of management, implying an increase in agency problems and causing corporate-asset expropriation (Peng, Zhang, & Li, 2007). It shapes agency problems and disagreements with shareholders because of the concentration CEO power in decision-making, who is risk-averse and self-interested, with different objectives from the shareholders', thus engaging in self-serving actions at their expense.

The presence of duality can also increase agency costs as a consequence of poor performance, creating a need to select business skills and expertise to improve board efficiency, help managers and reduce conflicts of interest between shareholders, with subsequent benefits for the entire firm. Accordingly, conflicts of interest reduce speed and decision-making effectiveness, resulting in poor performance (Brickley et al., 1997; Donaldson & Davis, 1991). CEO duality is negative when the CEO has more power than other executives in top management and when there are outside blockholding directors who are otherwise insignificant (Tang, 2017). The CEO duality may reduce the board of directors' effectiveness by affecting the CEO's power to control information flow, set the board's agenda and weaken the independence of outside members (Boyd, 1995; Brickley et al., 1997; Desai, Kroll, & Wright, 2003). The top-management team that includes other executives and outside blockholding directors who interact regularly will directly influence the CEO, reducing a chair-CEO's agency problem and the effect of CEO duality. Other executives should have sufficient power to effectively monitor the chair-CEO to be able to reduce agency problems, whereas outside blockholding directors tend to conspire and discipline the

chair-CEO, which exacerbates the agency problems (Tang, 2017).

Accordingly, on the other side, other studies stress the positive effect of CEO duality and its maximisation of shareholder value and improvement of organisational efficiency (C. Anderson & Anthony, 1986; Bhagat & Black, 2001; Brickley et al., 1997; Donaldson & Davis, 1991; Finkelstein & D'aveni, 1994; Stoeberl & Sherony, 1985). Firm performance and strategic decisions are more efficient when the leadership is single and strong and its commands are unified. The top managers are well established and have clear authority, avoiding confusion resulting from multiple authorities (Finkelstein & D'aveni, 1994; Pfeffer & Salancik, 1978a). The unified leadership helps and enhances the firm's response to external events and efficient decision-making (D. Miller & Friesen, 1977). CEO duality may also promote greater firm performance by permitting the CEO to gain complete authority over the organisation (Desai et al., 2003), promote better communication with the board (Stoeberl & Sherony, 1985) and implement consistent strategies (C. Anderson & Anthony, 1986). CEO duality also authorises a faster decision-making process and strong leadership, resulting in a good performance.

CEO duality avoids ambiguous leadership and board operating-procedures confusion through the manager and shareholder alignment. However, researchers of the stewardship-theory perspective recognise the CEO-duality benefits of enhancing the unity of command at the top (Finkelstein & D'aveni, 1994). CEO duality produces good results for majority and minority shareholders. CEO duality in family firms is viewed from two opposing perspectives. Agency-theory supporters claim that family CEO duality leads to private benefits within the family. On the other hand, the stewardship-theory defenders (T. Miller & Triana, 2009) suggest that CEOs in family firms have a greater competitive advantage in these firms (Rubino et al., 2016). CEO duality is positive and statistically significant in family firms with members involved in management. So, the positive influence of family CEO duality is due to the added value for the company, reduction of conflicts of interest and agency costs and contribution to company growth and development. This includes assuring corporate longevity and creating strong clients' relationships supporting the firm (Miller et al., 2008). For non-family firms, CEO duality benefits outweigh its costs (Kang & Zardkoohi, 2005; Yan Lam & Lee, 2008).

Other researchers mention that there is no significant relationship between CEO duality and firm performance (Baliga, Moyer, & Rao, 1996; Chaganti, Mahajan, & Sharma, 1985; J. Johnson et al., 1996). The Egyptian context shows that CEO duality results in fewer corporate-governance voluntary disclosures, negatively associating the two variables (Ezat & El-Masry, 2008; Samaha et al., 2012). Along the same lines, in Egypt, a separation between CEO and chairperson positions may not affect firm performance (Omran, 2009). There, CEO duality occurs as CEOs run the board as well as the company's business. Duality exists in some other countries, such as a small percentage of large Australian companies and about 80 per cent of large U.S. companies (Donaldson & Davis, 1991; Kholief, 2008).

The relationship between CEO duality and firm performance in agency theory, including family or non-family firms, blockholders ownership and other top management executives, has been discussed, resulting in the following summary from the author's point of view. According to the divergence-of-interests and agency theories, CEOs emphasise their personal interests at the expense of shareholders' interests, resulting in CEO duality's bad effect on performance. A summary of the reasons for this effect and the poor performance includes high CEO compensation, high cost to replace a CEO and board no longer efficiently monitoring and controlling decisions, controlling information flow or setting the board's agenda. Additional reasons are weakening the independence of outside members, increasing agency problems, disagreements with shareholders and conflicts of interest, reducing decision-making speed and effectiveness, causing corporate-asset expropriation and CEOs who are risk-averse and self-interested with different objectives from those of the shareholders. When a CEO has more power than other executives in top management, CEO duality has negative effects. Based on this theory, family CEO duality leads to private benefits.

On the other side CEO nonduality maximises shareholder value, improves organisational efficiency, enhances the firm's response to external events, enables faster decision-making processes, supports majority and minority shareholders, reduces conflicts of interest and agency costs leading to improved firm performance. The reasons are that leadership is single and strong and commands are unified through clear and complete authority apparent in better communication, resulting in the

company's growth and development. Family CEO firms have a greater competitive advantage. CEO nonduality enhances board effectiveness and positively affects corporate performance. As one of the emerging markets, Egypt is analysed to determine if CEO duality has a positive, a negative, or no relationship with Egyptian firm performance. Based on these arguments, the seventh hypothesis is set as follows:

Hypothesis 2: There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance

Hypothesis 2b$_1$: There is a relationship between CEO duality and firm performance before the Revolution.

To the author's best knowledge, this is the first thesis to examine the impact of the Egyptian Revolution on the relationship between CEO duality and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that CEO duality should have less effect on firm performance after the Revolution than pre-revolution based on the following.

Hypothesis 2b$_2$: There is a negative relationship between CEO duality and firm performance after the Revolution.

CEO duality can be a reason for conflict of interests as they concentrate on their personal interests at the expense of shareholders' interests and they may control information flow or setting the board's agenda for personal benefits. These interests will have an effect on performance.

3.4.3 Board Independence

Previous studies focus on board independence from the CEO and its relation to firm performance (Bebchuk and Fried, 2004), as well as how CEO pay affects behaviour regarding shareholders' interests. Motivations for that behaviour include incentive mechanisms as outcome-based controls and monitoring mechanisms as behaviour-based controls. Outcome-based CEO pay mitigates agency problems between CEO and shareholders by aligning CEO interests with shareholder interests, but encourages undesirable CEO behaviours (Devers, Cannella, Reilly, & Yoder, 2007) and affects the use of board monitoring (Seo, 2017). Board independence is measured as the ratio of nonexecutive directors to the total board (Hashim & Devi, 2008). (Van Essen, Otten, & Carberry, 2015) predict that when boards have more power over CEOs, then CEOs will receive lower compensation, pay that is more sensitive to corporate performance (Blau, 2017; Emerson, 1962; Pfeffer & Salancik, 1978a). Independent-director literature is quite mixed regarding the ability to bridge the informational deficit and ultimately to impact on discrete board tasks and corporate performance.

Outside directors are not all evenly efficient in top-management monitoring (Coles et al., 2008) because some are directed by the CEO and have relations with the firm or with its management, while other outside directors who might be affiliated will not have the skill to monitor the firm management objectively. Therefore, some authors conclude that outside directors the company's management has chosen, whose decisions are based on management information, are not really independent (Baker, 1987; Mace, 1986; Shivdasani & Yermack, 1999). Hence, independent outside directors should not have a material relationship with the firm or its management and should be unaffiliated, to be able to advise and monitor board functions (Redor, 2016). Bebchuk and Fried (2004) say that boards are rarely independent or have no relationship with those with whom they engage (i.e. engage in arms-length transactions). CEOs may have power over the board members, due to specific structural and social-psychological mechanisms that affect the executives' higher pay and pay that is less sensitive to performance but affect board decision-making about executive compensation. Inside directors are well informed about the company and familiar with it, while outside directors are relatively unfamiliar with the company

and more objective. Outside directors may be less informed than inside directors, which might lead them to make mistakes in their decision-making process (Bhagat & Black, 2001). From the managerial-power-theory view, corporate executives do not usually share information related to the firm, to increase their managerial control. This can result in an informational deficit among independent board members, reducing their monitoring effectiveness, controlling their ability to provide suitable and sufficient strategic advice to the management and decreasing overall firm performance. This result also occurs to protect corporate executives' interests through choosing boards with little experience or inadequate and poor qualifications (R. Adams & Ferreira, 2009; Cai, Liu, Qian, & Yu, 2015). Thus, there is a negative relationship between independence and performance.

On the other hand, powerful shareholders agree on having highly competent independent members to maximise their value. Board heterogeneity can be divided into two main components (R. Anderson, Reeb, Upadhyay, & Zhao, 2011), the first based on social factors, such as gender, ethnicity and age; the other related to occupational factors that include education, experience and profession. Regarding the occupational component, industry expertise and informal network affiliations are two sources of heterogeneity. Industry expertise can enhance board effectiveness by improving the advising ability of board members, enhancing independent members' monitoring ability and reducing the possible informational gap (X. Chen, Cheng, & Wang, 2015; DeHart, Lynch, Belknap, Dass-Brailsford, & Green, 2014; Faleye, Kovacs, & Venkateswaran, 2014). Therefore, industry expertise found in independent directors helps to promote significant and positive interaction between independence and expertise in performance. The second source—informal network affiliation or the extent of informal connections with nonexecutive board members and corporate executives—is also important because social networks shared with other board members should increase directors' power and effectiveness of directors. Information flow between board members is eased by informal connections, and the decreased informational deficit is associated with better firm performance (J. Cohen, Krishnamoorthy, & Wright, 2008; Coles, Daniel, & Naveen, 2014). Hence, in the context of individual heterogeneity, independence negatively correlates with performance and decreases when directors have industry expertise or informal network affiliations with other board members (Cavaco, Crifo, Rebérioux, &

Roudaut, 2017).

High levels of investment opportunity enable the firm to enhance its technology, product and corporate innovations. It also helps the firm to acquire a competitive advantage that could increase sales and profit. That explains high investment-opportunity sets as a reason for a positive relation between firm performance and board independence, which might enhance it. Agency problems occur in high-growth firms where board independence effectively improves firm performance. In such firms, more control and monitoring levels of the board will facilitate the alignment between CEO and stockholder interests. Increasing outsiders in proportion to insider directors enhance operating performance (Boone et al., 2007). CEO duality increases the concentration of decision management and control in one person, reducing the effectiveness and performance of the firm and explaining why increasing the number of outsiders positively affects performance (Kyereboah-Coleman & Biekpe, 2006). (Black, Jang, & Kim, 2006; Choi, Park, & Yoo, 2007; Omran, 2009; Peng, 2004) found that outside directors are the reason for better corporate-governance mechanisms. The higher number of outside directors has a positive relationship with FP. Board independence enhances board effectiveness and is improved when the CEO and chair positions are separated, as well as when the number of independent outsiders is greater (Kor, 2006). (Booth, Cornett, & Tehranian, 2002) reports the same results but uses market value and net income to measure firm performance. Also, when market value and net income are higher, independence increases and the firm has a higher percentage of outside directors. Furthermore, in the UK, (Peasnell, Pope, & Young, 2000) provide evidence of a significant negative association between income increasing accruals and the proportion of outside board members.

Higher board independence is probably more efficient in supervising management activities and inspiring them to maximise long-term value, increase transparency and set long-term performance objectives. Independent boards are less involved in controls implementation and the company's execution operations, according to agency theory. They are also more objective in judging management performance, ensuring firm sustainability and reducing information asymmetry with different stakeholder groups, which explains why they are more effective in governing and monitoring management practices. Their compensation is not related to short-term

financial performance (Jizi, 2017). The earliest studies on board independence argue that outside directors who are not part of the management team indicates better board decision-making (Dahya and McConnell, 2005). Boards must have outside directors to fulfil their monitoring role, according to agency theory (J. Johnson et al., 1996), as they are not elaborated in day-to-day firm management and not accountable to the firm's CEO. They enhance the internal and external governance mechanisms.

Other studies report that there is no relationship between the outside directors and FP, or only little impact on FP. Hermalin and Weisbach (2003) found that firms with a higher proportion of outside directors are not significantly associated with high FP. The studies in the literature include many findings regarding the relationship between board independence and FP.

Showing connections and common ground, independent-directors literature is quite mixed but not to an extent that would make it implausible to link board independence with firm performance. In general, the negative relationship between independence and performance is explained by managerial-power theory, which suggests that executives increase their managerial control through informational deficit, not sharing firm information and choosing boards with little experience and poor qualifications. Therefore, outside directors are unfamiliar with the company and less informed, leading them to make mistakes in their decision-making process, reducing monitoring effectiveness and decreasing overall firm performance. Independence is negatively correlated with performance, but it can be reduced by having industry expertise or informal network affiliations among board members. Industry expertise is a reason for reducing the possible information gap to enhance independent members' effectiveness, improve their advising and monitoring ability and have a significant and positive effect on firm performance.

Informal connections between independent members and corporate executives increase the power and effectiveness of directors, facilitate information flow, help to decrease an information deficit and lead to better firm performance. Outside directors are rarely independent; they have relationships with the firm or its management, and their decisions are based on the management's information because CEOs may have power over the board members, which explains why they can be more effective than

those who have no relation and cannot manage objectively. Board independence reduces agency problems, facilitates the arrangement between CEO and stockholder interests, reduces the information asymmetry among different stakeholder groups, enhances board decision-making, promotes efficiency in supervising management activities, maximises long-term value and increases transparency. As a result, outside directors are less involved in controls implementation and more objective in considering management performance. In short, increasing outsiders decreases the concentration of decision management, eliminates vesting control in one person and results in a positive effect on performance and better corporate governance mechanisms. Based on this conclusion and the findings reported, the author seeks more about the relationship between board independence and firm performance in Egyptian companies reaching the eighth hypothesis.

Hypothesis 2: There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance

Hypothesis $2c_1$: There is a positive relationship between board independence and firm performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between board independence and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that board independence is improved after the Revolution than pre-revolution based on the following.

Hypothesis $2c_2$: There is a relationship between board independence and firm performance after the Revolution.

The Revolution demands included having transparency and avoiding corruption which can be achieved through board independence. It can help to reduce conflict of interests and enhance board decision-making to cope with any negative effects of the

Revolution. Board dependence increases the possibility of companies' survival through maximising long-term value and increasing transparency by more objectivity in considering management performance.

3.4.4 Board Diversity (Gender)

The current challenges of technology, economy and politics require firms to have talented and highly skilled directors with a variety of backgrounds, education, experience, knowledge, views and perspectives, to promote good decision-making. These characteristics increase and enhance business creativity and generate innovative solutions through cognitive conflict (Reguera-Alvarado, De Fuentes, & Laffarga, 2017). One of the findings is that female representation on BOD has positive impacts on top management and firm performance by increasing the firm's innovation power. No single theory can suggest an inclusive framework for the relationship between diversity and firm performance (Kiel & Gavin, 2003), so a mix of agency theory, resource-dependency theory and stakeholder theory can help in examining this relation. The UK Corporate Governance Code 2014 indicates the importance of board diversity, supporting participation by women on boards to facilitate and maintain successful relationships with stakeholders. Some authors suggest that female directors are different in personality, diligence, communication skills, commitment and self-interest orientation (Cavaco et al., 2017; Huse & Solberg, 2006). Resource-dependence theory contends that the board of directors is an important resource for companies that links them with their competitors and their industry (Van der Walt & Ingley, 2003). Hiring female directors enhances firm financial performance because female directors have viewpoints that differ from those of male directors. Women may also provide better access to skilled and well-connected directors, efficient resource utilisation, various benefits and resources for the company and experience to improve financial performance.

Younger directors with qualifications can improve the performance of female directors sitting on the board. Diversity develops the directors' profiles to enhance relations with competitors and customers, improve industry knowledge and lead to better performance. Therefore, companies that have better financial performance are expected to employ female directors. Gender diversity is one of the required

corporate-governance practices to establish a good and strong ethical culture within organisations (Farag & Mallin, 2016). It will reflect discrimination or equality in fair recruitment, compensation packages, how the company treats employees and promotes them and whether women reach top positions (Nekhili & Gatfaoui, 2013). Higher levels of managerial ownership increase the number of females sitting on the board of directors because they motivate and influence the nomination and decisions related to choosing female directors.

Female directors motivate women in middle and lower-level management to improve their own performance and to contribute to the managerial groups to which they belong (Dezsö & Ross, 2012). They have better attendance records and greater involvement with committees, such as corporate governance and audit committees, which require intense monitoring (R. Adams & Ferreira, 2009). The financial restatement is required less frequently in the presence of female board members (Abbott, Parker, & Presley, 2012). They accept and are assigned more frequently to roles related to environmental and sustainable-development matters, as these positions are more closely aligned with their roles in society (Liao, Luo, & Tang, 2015). Adams and Ferreira (2009) find that greater female representation increases the size of the human-capital pool, provides some additional skills and perspectives that may not be possible with all-male boards and creates tougher monitors characteristic of gender-diverse boards. Male directors are more concerned with compensation and the executive and finance committees, while female directors are selected for public-affairs committees. Female directors are sensitive market observers and can get realistic consumer points of view that increase productivity, firm value and profitability. When the female directors are non-executive or independent, the reaction of the stock market is positive (Yasser, 2012).

New Zealand has a smaller market than other developed countries such as the U.S., the UK and Japan. Small and medium enterprises and agriculture dominate its economy, which may reflect different ownership structures, corporate governance and firm performance. The author used 79 listed firms in New Zealand and found that boards of directors positively impact firm performance, and if female directors are nonexecutive, then the performance will be lower. The female directors on the board, leverage and firm size exhibit a significant impact on N.Z. firms' performance. The

result reveals that boards of directors, board committees and managerial ownership have a positive and significant impact on firm performance (Fauzi & Locke, 2012).

Chinese companies have a dual board structure comprising the supervisory board/committee (SB) and the BOD. This reflects a bi-directional relationship between performance and the female directors' number on the BOD in China. Some companies succeed to employ female directors, sending a progressive signal to institutional investors and stakeholders. This means that firm performance affects board gender diversity (performance to diversity). A diversity-performance relationship is also apparent, running from diversity to firm performance. As mentioned above, greater diversity means different perspectives, backgrounds, experience and positive impact on financial performance (Farag & Mallin, 2016).

Agency theory emphasises the conflicts of interest that can indicate asymmetric information and incomplete contracts. The board of directors is a key governance factor in aligning the interests of managers with shareholders. Accordingly, a heterogeneous board has better control, a wider range of views, greater board independence, reduction in costs associated with agency problems and increased value of the firm (Hillman & Dalziel, 2003). To enhance board independence, the company needs board diversity with different backgrounds and qualifications for better manager monitoring and lower agency costs consistent with agency theory (Carter, Simkins, & Simpson, 2003). Increasing board size and independence of the firm will increase diversity, improving supervisory roles and performance. Hence when boards are large and more independent, the presence of female directors is greater. Therefore, resource-dependency theory and agency theory suggest that increasing diversity benefits firm performance. Following the stakeholder theory, women on boards offer important indicators and a sign that the firm is stakeholder-oriented, ensuring the incorporation of stakeholder interests (Fauzi & Locke, 2012).

On the other hand, board gender diversity can be a conflict source, decision-making difficulty and negative impact (R. Adams & Ferreira, 2009; Carter, D'Souza, Simkins, & Simpson, 2010; De Andres et al., 2005) or have no influence on board effectiveness (Rose, 2007; Zahra & Stanton, 1988). It could cause communication problems, increasing intergroup conflicts on larger boards; women are more risk-averse and

recommend less aggressive strategies (Apesteguia, Azmat, & Iriberri, 2012; Croson & Gneezy, 2009; Niederle & Vesterlund, 2007; Post & Kris, 2015). CEOs prefer small and homogeneous boards for a better monitoring process (Adams and Ferreira, 2009).

To summarise the previous section, the relationship between board diversity and firm performance is mixed. First, based on the resource dependence theory, hiring female directors enhances firm financial performance by increasing productivity, firm value and profitability. Female directors have different viewpoints, personality, diligence, communication skills, commitment and a less self-interested orientation. Moreover, they are sensitive market observers, get more realistic consumer viewpoints, have better attendance records, utilise resources more efficiently, improve industry knowledge, increase a firm's innovation power and are associated with lower rates of a financial restatement. Following stakeholder theory, females on boards have successful relationships with stakeholders (competitors and customers), indicating that the firm is stakeholder-oriented and ensuring the incorporation of stakeholder interests. Agency theory emphasises that gender diversity is associated with improved control, a larger range of views, higher levels of board independence, different backgrounds and qualifications, reduced agency problems, lower agency costs, better supervisory-role performance and increased firm value. Female directors accompany higher levels of managerial ownership and larger and more independent boards. They are talented, highly-skilled, with a variety of backgrounds, education, experience, knowledge, views and perspectives. These enhance and promote better decision-making, increase business creativity and generate innovative solutions. The second part is the bi-directional relationship, from performance to diversity and diversity to performance. The third and last part of the mixed relation is that performance and female directors have a negative relationship or no influence. This is because diversity is a source of conflict, decision-making difficulty and communication problems. Women are more risk-averse and recommend less aggressive strategies when they are nonexecutive. Costs and benefits of board diversity can be summarised as better advisory and monitoring roles on one hand, and on the other hand, communication costs and disagreement between managerial levels. When benefits outweigh the costs, the firm will have a positive relationship with firm performance and vice versa. Board diversity and female roles in Egyptian companies and how much they should be highlighted to improve firm performance are among the most important topics

discussed after the Egyptian Revolution. This is the reason the author chose to analyse it and find out if Egyptian companies work on diversity. Based on these arguments, the ninth hypothesis is set as follows:

Hypothesis 2: There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance

Hypothesis 2d$_1$: There is a positive relationship between board gender diversity and firm performance before the Revolution.

To the author's knowledge, none of the extant empirical studies has adequately addressed the impact of the Egyptian Revolution on the relationship between board gender diversity and firm performance. Depending on the previous literature studies in Egypt between the period 2009 to 2016 (Desoky & Mousa, 2012; El-Habashy, 2018; Elfeky, 2017; Fayez, 2019; Mahmoud & Ntim, 2018; Masry, 2016; Sarhan et al., 2019), the next hypothesis was developed and therefore, the author hypothesises that board gender diversity will improve after the Revolution than pre-revolution based on the following.

Hypothesis 2d$_2$: There is a relationship between board gender diversity and firm performance after the Revolution.

It is recommended for any devolving country to concentrate and focus on gender diversity and especially on females' education and work. Therefore, the author expects that gender diversity will show an effect on firm performance after the Revolution. They can also help with their communication skills and their relationships with stakeholders.

In short (and putting it bluntly), ownership structure related to the proportion of shares that various shareholders own explains the type of ownership that exists within a corporation, including block or family ownership, government or state ownership, institutional ownership and managerial or director ownership, discussed in detail above. Numerous studies have attempted to explain these types and their relationship with firm performance. As noted, block ownership refers to shareholders with

extremely large amounts of company stock—external holders with at least 5% of the shares—who influence the company and improve the value of the firm. Corporate performance and control management increase as the share of blockholders increases. Family ownership occurs when the founder or a family member is an officer, director, blockholder owner, manager or board member. It covers agency costs and resource-dependence theories, as the close relationship between family members reduces conflicts of interest and goals and enhances family capital, accordingly increasing performance. Firm performance can also decrease due to the lack of job qualifications when the CEO position is filled through family relations. The relationship between block ownership and firm performance was analysed to find out if the predominance of family firms has a negative effect or a close relationship between family members enhances firm performance by reducing conflicts and agency costs. The analysis is also used to assess whether this ownership type was presented and affected firm performance as early as 2000.

Government ownership includes direct firm ownership or indirect support that shows positive and negative relations with firm performance. One of the important ownership-structure types, it concerns shareholder protection and objectives and government and political interference effects on management. Inconclusive relationships make it interesting to examine its relationship with Egyptian firms' performance. Many reasons for the negative impact on firm performance include political factors, government pressure on companies to implement government objectives and weakening the directors' independence. The positive relationship is due to the government's long-term provision of funds, facilitating access to financial resources and secured debt financing. This thesis considers the developing countries where institutional ownership is rapidly expanding and whether this is the case in Egypt, affecting firm performance. Institutional shareholders' positive effect is apparent throughout pressure-insensitive, foreign and large institutional shareholders. Pressure-sensitive, domestic and small institutions have a weaker relationship with performance; however, the exploitation view demonstrates weakened firm performance and a negative relationship between the variables. Other than this, the passive-monitoring institutional investors have a weak or non-existent relationship with firm performance.

The equity percentage owned by insiders and the company's management participating actively in corporate decision-making referred to as managerial ownership, have different and mixed effects on FP. One is associated with the convergence-of-interest effect and agency theory, which support the positive effect on firm performance. The other relates to the entrenchment theory, showing negative impact—namely, no statistically significant relation with FP because of the separation and differentiation of managerial and board ownership. Figure 3.1 shows all the hypotheses developed in the thesis.

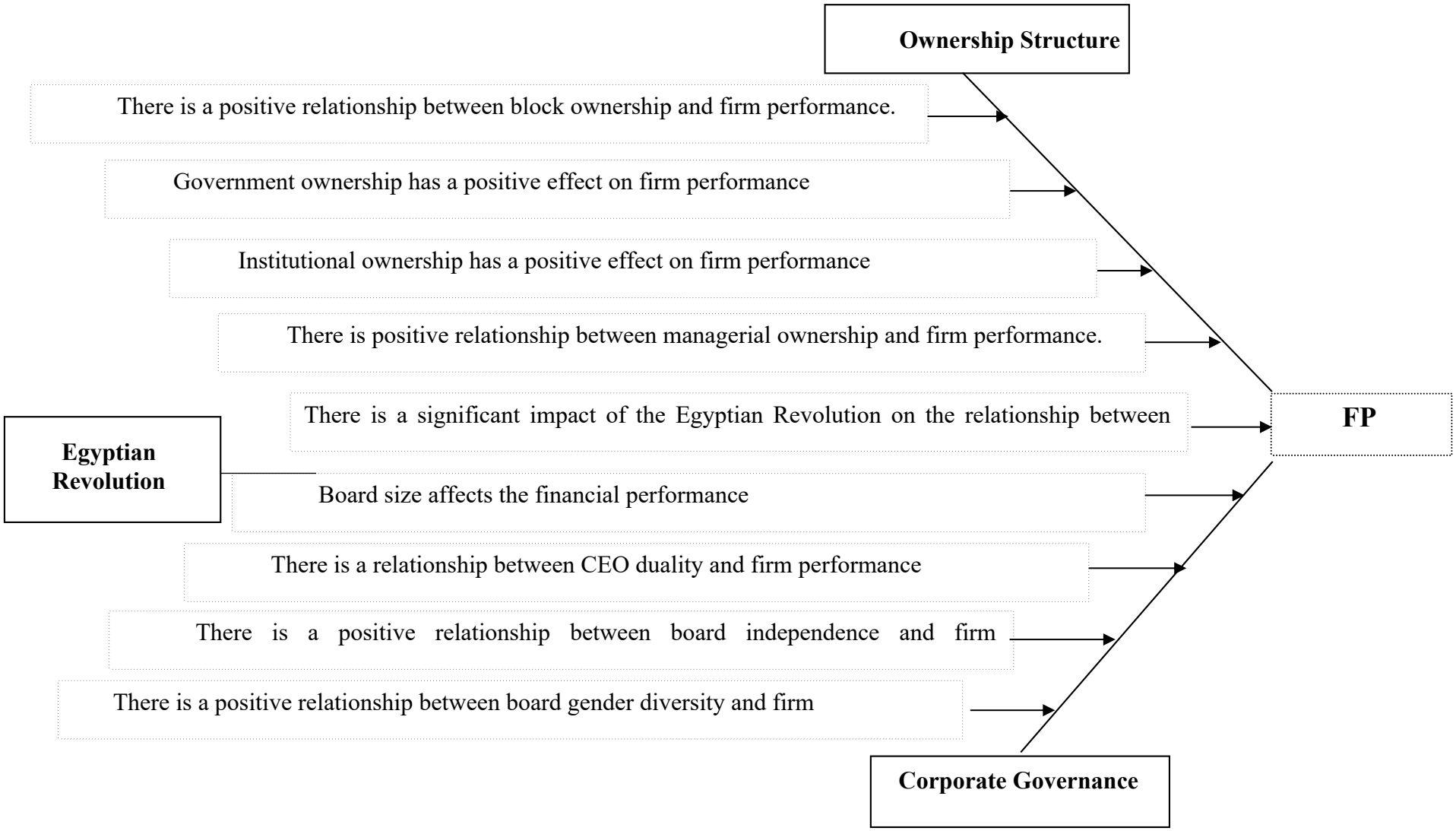

Figure 3.1 Hypotheses Summary

It is important to discuss the impact of corporate governance roles and variables, especially in post-revolutionary Egypt. It is interesting to reveal how board size affects firm performance in Egypt and to discover the factors influencing this relationship. Board size affects the mobilisation of resources, information-processing capacity, the ability to cope with environmental complexity, agency costs, corporate discussions, and communication. CEO duality, the second variable affecting firm performance, is itself influenced by independent outside members, agency problems, conflicts of interest, and the cost of replacing a CEO. In turn, CEO duality affects organisational efficiency, decision-making processes, communication, board effectiveness, and the response to external events such as those that have taken place in Egypt. A review of board independence requires examining informational flows, experience, qualifications, decision-making processes, the monitoring of effectiveness, transparency, and arrangements between CEOs and stockholder interests. The final corporate governance variable examined here is gender diversity and the roles of women in Egyptian companies, which are of particular importance following the revolution. This variable is relevant to productivity, personality, communication skills, commitment, market observation, resource utilisation, variations in backgrounds and qualifications, supervisory roles, business creativity, innovation, and communication skills. To the author's knowledge, no study undertaken to date has examined the effects of the Egyptian revolution on each of the abovementioned variables. The chapters that follow will analyse and discuss all of these variables to conclude their effects on firm performance following the revolution, contributing to filling the current gap in the literature.

Chapter 4: Research Design

4.1 Introduction

The purpose of this research was to examine the relationships among ownership-structure types, corporate-governance (CG) variables and corporate performance. The first part of this chapter explains the research philosophy, including the paradigms (i.e. the interpretive paradigm and the positivist paradigm), the research approaches (i.e. deductive, inductive and abductive approaches) and qualitative and quantitative research methods. The second part discusses the data and the analysis methodologies.

4.2 Research Philosophy

This thesis examines the influences of the economic impact of the Revolution, ownership-structure and corporate-governance on firm performance and identifies those factors. Thus, the positivist paradigm is the appropriate research philosophy for this thesis. A paradigm is a set of linked assumptions about the world, shared by a community of scientists investigating that world and giving their investigation a conceptual and philosophical framework, essential for the day-to-day work of any science (Suppe, 1977). By understanding the paradigm's nature and meaning, it was easy to determine which problems are worthy of examination and which methods to use. Another task in this part of the research methodology is to select which research approach to follow. The deductive approach to research relies on empirical confirmation of general conclusions derivable from a specific and detailed number of observations (J. Adams, Khan, & Raeside, 2014). The researcher created Figure 4.1 to illustrate the deductive approach, which is more structured and formalised.

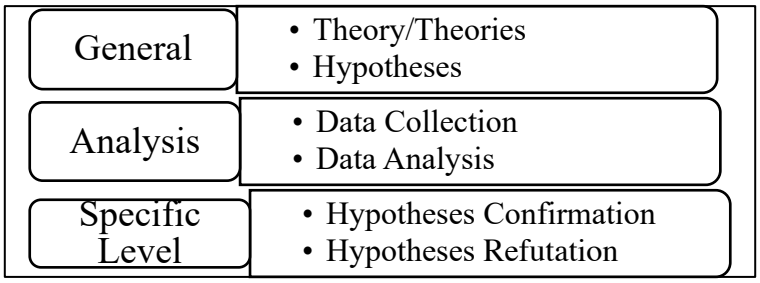

Figure 4.1 Deductive Research Steps

The last task of this part is to choose between qualitative and quantitative research methods (Carr, 1994; Dzurec & Abraham, 1993; Gortner & Schultz, 1988; Moccia, 1988; Rolfe, 1994). The quantitative paradigm seeks facts or causes without advocating subjective interpretation. It is a logical-positivistic approach (Cook & Reichardt, 1979). This demonstrates that the thesis applies the positivist paradigm, a deductive approach and quantitative technique to examine the relationship between ownership structure, corporate governance Revolution impact and firm performance while controlling for some other variables, which means that it applies the positivist paradigm.

4.3 Research Methodology

4.3.1 Data Selection, Sources, and Criteria for Selecting the Final Sample

The thesis tests the relationship of the firm's performance with ownership-structure and corporate-governance variables. It includes three data types: ownership structure, corporate governance and corporate firm-performance data. Ownership-structure data is from the ownership-structure reports published by each company for each year at the Egyptian stock market. Ownership-structure types include Managerial/Director Ownership (MOWN), Block Ownership (BOWN), Government/State Ownership (GOWN) and Institutional Ownership (IOWN). Corporate-governance data, such as Board Size (BS), Board Independence (BI), Board Diversity (BD) and CEO Duality (CD), are also from the ownership-structure reports. Corporate firm-performance and control-variable data are collected from financial statements (income statement and balance sheet) and disclosure books. The

ownership structure, corporate governance and corporate firm-performance data cover 101 companies out of 191 companies. These chosen companies are the most active listed Egyptian companies in different industries, based on their yearly transactions on EGX excluding the financial firms and banks, utilities firms, and less active firms. All listed companies were included in the sample; then, the inactive ones and those with missing data were excluded. In 2006, the Ministry of Investment issued the Code of Corporate Governance for State-Owned Companies in Egypt, so the year 2008 was late enough to have complete CG reports on the corporations and avoid the problem of missing data. Therefore, the thesis population is about listed firms on the Egyptian stock exchange, starting in 2008. Accordingly, the data cover the years from December 2008, to December 2017, presented by year.

The thesis data were obtained from secondary sources, extracted from the annual reports and accounts of the listed firms in Egypt, for the period 2008 to 2017. The two sources that could have been used were the EGX 100 and DataStream, but after finishing the data collection and completing the sample using EGX only, due to data availability for all 101 companies (992 observations), the thesis excluded the DataStream data. The data used in this thesis include non-financial companies covering different industries, excluding financial firms whose financial statements differ from the others. The information came from financial statements, disclosure books and ownership-structure reports. As the data used were collected at different times, panel data enabled the analysis of many variables at different periods, useful for explaining change over time. The criteria used to select the final sample were based on the availability of the data from 2008 to 2017, including annual ownership reports, annual financial statements and corporate governance data. While gathering the data, some CG and ownership-structure data were missing. Since financial firms and utility firms were meant to be excluded, 90 of the 191 companies in the sample were excluded. The data used in this thesis are longitudinal panel data, as the same variables are observed over ten years (2008 to 2017). The rationale behind this is to consider three years prior to the Egyptian Revolution as well as the six years following the revolution. Panel data have some advantages over cross-sectional and time-series data. They yield more accurate implications, include more sample variability, simplify computation and statistical conclusions, and generate more accurate predictions for individual outcomes by pooling the data. Error measurement

and controlling omitted variables' impact help to test dynamic hypotheses and cover short- and long-term effects (Hsiao, 2007). Data before and after the year 2011 are included, due to the occurrence of the Egyptian Revolution in January 2011, which may lead to different conclusions about the revolution's effect on the financial performance of the Egyptian companies and fill the gap of missing answers to that question.

A panel-data multiple regression model is used for data analysis. Panel data can control heterogeneity among the cross-sections and reduce the multicollinearity problem of the explanatory variables (Mira, 2005).

Table 4.1 shows the final sample, with explanations of all the industries and how many companies in each industry are used in the sample before and after exclusions. It represents the final sample selection that includes 101 out of 191 companies and 992 observations. The company-classification system is categorised as per to Industry Classification Benchmark (ICB) developed by Dow Jones and the Financial Times Stock Exchange (FTSE); it is based on business nature and source of revenue. ICB hierarchy provides eighteen industries excluding four industries, namely, Banks and Financial Services, Insurance and Utilities. There are still 14 industries as shown in Table 4.1. The excluded firms are the financial firms and firms with some years and CG data missing. Utility firms are excluded because they are characterised by long-term debt, more fixed assets, lower retained earnings and high dividend payout ratios. Financial firms are excluded due to their high leverage, which may lead to financial distress (Fama & French, 1992; Foerster & Sapp, 2005).

Table 4.1: Summary of the Final Selected Samples (Companies and Industries)

Industry Type	No. of Companies	Per cent
Real Estate	28	14.66%
Consumer Goods	26	13.61%
Construction and Materials	25	13.09%
Industrial Goods and Services and Automobiles	16	8.38%
Consumer Services	15	7.85%
Healthcare and Pharmaceuticals	14	7.33%
Personal and Household Products	10	5.24%
Basic Resources	8	4.19%
Chemicals	6	3.14%
Retail	5	2.62%
Telecommunications	4	2.09%
Oil and Gas	3	1.57%
Technology	3	1.57%
Media	1	0.52%
Financial Services	26	13.61%
Utilities	1	0.52%
Total Population	191	100%
Less Financial Firms and Banks	26	13.61%
Less Utilities Firms	1	0.52%
Firms less active in market and with missing data	63	38.75%
Total Sampled Firms with full data	101	47.09%
Total Missing Observations	467	52.91%
Total Observations	992	

Moreover, their financial reporting process is not the same as those of companies in other industries, and they use specific accounting rules associated with their business (Peasnell et al., 2005). Financial institutions also face controlling monitoring that relates explicitly to accounting data and creates incentives managing the income statement and balance sheet variables of interest to regulators (Healy and Wahlen,

1999). Those firms also have a different capital structure than non-financial corporations.

By this exclusion, the thesis will avoid bias that could affect the results of the analysis and will deliver a more accurate sample. Table 4.2 shows the different ownership structures included in the thesis.

Table 4.2: Different Ownership Structure of Thesis Analysis

Ownership Structure Type	Per cent
IOWN	50
GOWN	27
MOWN	20.3
BOWN	2.7
	100

Table 4.2 shows the listed ownership-structure types of the sample in percentages. As shown, institution ownership (IOWN) represents 50 per cent of the whole sample, government ownership (GOWN) represent 27 per cent of the whole sample, managerial ownership (MOWN) represents 20.3 per cent and block ownership (BOWN) represents 2.7 per cent.

To evaluate the relationship between performance and the other variables, this thesis uses regression analysis, employing the ordinary least squares technique. Multiple regressions, System Generalized Method of Moments (SGMM), and Principal Component Analysis (PCA) were used for the analysis and STATA software was used to run the regression.

4.4 Econometrics Models and Variables Definitions

The model used in this thesis is a linear regression model, and STATA was used to run the regression to explore and examine the relationships between ownership structure and corporate governance with firm performance, through the System Generalized Method of Moments (SGMM), and Principal Component Analysis (PCA)

which are used in the following equation. The variables definitions and their measurements are summarised in Table 4.3. These methods are used to ad a methodological contribution and get accurate results and to add to the literature by examining the PCA findings as it was not used before to investigate these relationships.

Model 1:

This equation is used to describe the relationship between firm performance with ownership structure and corporate governance

$$FP_{it}(ROA, ROE, Tobin'sQa \text{ and } Tobin'sQb) = \alpha + \beta_1 BOWN_{it} + \beta_2 MOWN_{it} + \beta_3 GOWN_{it} + \beta_4 IOWN_{it} + \beta_5 BS_{it} + \beta_6 CD_{it} + \beta_7 BI_{it} + \beta_8 BD_{it} + \beta_9 SIZE_{it} + \beta_{10} LEV_{it} + \beta_{11} LIQ_{it} + \beta_{12} AGE_{it} + \beta_{13} TANG_{it} + \varepsilon$$

Model 2:

This equation is used to describe the relationship between firm performance with ownership structure and corporate governance before the Revolution

$$FP_{it}(ROA, ROE, Tobin'sQa \text{ and } Tobin'sQb) = \alpha + \beta_1 BOWN_{it} + \beta_2 MOWN_{it} + \beta_3 GOWN_{it} + \beta_4 IOWN_{it} + \beta_5 BS_{it} + \beta_6 CD_{it} + \beta_7 BI_{it} + \beta_8 BD_{it} + \beta_9 SIZE_{it} + \beta_{10} LEV_{it} + \beta_{11} LIQ_{it} + \beta_{12} AGE_{it} + \beta_{13} TANG_{it} + \varepsilon$$

Model 3:

This equation is used to describe the relationship between firm performance with ownership structure and corporate governance after the Revolution

$$FP_{it}(ROA, ROE, Tobin'sQa \text{ and } Tobin'sQb) = \alpha + \beta_1 BOWN_{it} + \beta_2 MOWN_{it} + \beta_3 GOWN_{it} + \beta_4 IOWN_{it} + \beta_5 BS_{it} + \beta_6 CD_{it} + \beta_7 BI_{it} + \beta_8 BD_{it} + \beta_9 SIZE_{it} + \beta_{10} LEV_{it} + \beta_{11} LIQ_{it} + \beta_{12} AGE_{it} + \beta_{13} TANG_{it} + \varepsilon$$

- **Dependent variables**:

FP = Firm performance

- **Independent variables:**

BOWN = Block ownership

MOWN = Managerial ownership

GOWN = Government ownership

IOWN = Institutional ownership

BS = Board size

CD = CEO duality

BI = Board independence

BD = Board diversity

- **Control variables:**

SIZE = Firm size

LEV = Leverage

LIQ = Liquidity Ratio

AGE = Firm Age

TANG = Assets Tangibility

ε = error term

4.4.1 The Dependent Variables

The dependent variable for these models is 'corporate performance'. It is the firm's overall financial health over a certain period, measured in three ways (David, 2011). The first method is the Tobin's Q ratio, defined as the firm's market value divided by the total assets, valued either at a book or replacement value: Tobin's Q = MV/TA (Shepherd & Shepherd, 2003). Another definition is the firm's market value plus the firm's debt, all divided by its total assets: Tobin's Q = (MVE + DEBT)/TA. MVE equals the product of a firm's share price and the number of common stock shares outstanding. DEBT is the value of the firm's short-term liabilities net of its short-term assets, plus the book value of the firm's long-term debt; the TA is the book value of the total assets of the firm (Chung & Pruitt, 1994). Tobin's Q is used in measuring the corporate performance in most studies (Cho, 1998; Harold Demsetz & Villalonga, 2001a; Hermalin & Weisbach, 1988; Loderer & Martin, 1997; McConnell & Servaes, 1990; Morck et al., 1988). Both Tobin's Q methods are used in this thesis, as the debt data was available for all the companies in the selected sample, which led to appropriate results.

The other two measurements—return on assets (ROA) and return on equity (ROE)—are accounting profit rates. There are some differences between these corporate performance measurements. The ROA is measured as the ratio of net income to the total assets. It measures the firm's ability to generate profits on its assets portfolio (Lee, 2012). It also measures profitability and asset-management efficiency. The higher this ratio is, the more profitable is the corporation (Monea, 2009).

The ROE is measured as the ratio of net income to the book value of equity. It reflects the extent of management-use effectiveness of shareholders' investments (Muda, Shaharuddin, & Embaya, 2013). It is also useful for comparison with other indicators of return, which are harder to make (Frezatti, 2007).

These ratios are used to measure corporation profitability for several reasons. They can control the size of financial information because they enable comparing ratios of different firms, even if the assets and liabilities are not comparable. Another reason is that ratios control industry factors. Industry characteristics can be seen by comparing the firm's financial ratios to those of an industry average (Rinkevičiūtė & Martinkute-Kauliene, 2014).

Tobin's Q is forward-looking, based on investors' estimations of future corporate profitability, which are affected by their psychology and their estimates of future events. The other ratios are backwards-looking and affected by accounting standards and practices, measuring assets (tangible and intangible) and depreciation, which can affect the recorded-profit levels

4.4.2 The Independent Variables

- **Ownership structure**

To give a more accurate picture of the relationship between ownership structure and performance, the data include the fraction of shares owned by various shareholders and those owned by the management. Block ownership is defined as the total number of individual shareholders who own 5% or more of the stock, or who

have an extremely large amount of corporation stock, creating a block of stock (blockholders) (Pham, Suchard, & Zein, 2011; Samaha et al., 2012). Blockholders can influence decision-making processes by the management to increase shareholder value (Brockman, Chung, & Yan, 2009). Managerial ownership is elected members/managers (e.g. board members, CEO, top management) who supervise the activities of the corporation. This ownership includes the shares owned by the CEO, corporate board members and the top management (Ghosh & Sirmans, 2003). Government ownership represents firms owned by the state rather than by an individual or a private entity. Government ownership could be viewed as a single entity, showing that state-owned corporations may have concentrated ownership funded by the state's money as a whole; individuals within the government do not influence the firm's actions. Institutional ownership occurs when large financial organisations own an ownership percentage of a corporation. The type of corporate ownership is measured by the fraction/ percentage of shares owned by each type of owner, and the exceeding percentage represents the ownership type (Brown, Chen, & Shekhar, 2011).

- **Corporate governance variables**

Corporate governance is important in determining how corporations are managed and monitored. It can be defined as the set of institutional and market-based mechanisms that encourage the self-interested company controllers. It helps to show how the company will be operated to maximise its value and to assure getting a return for suppliers of capital investment (Denis & McConnell, 2003; Shleifer & Vishny, 1997). It includes four variables.

- **Board Size**

Board size (BS) is the number of directors elected to govern the corporation. Some authors (Lipton & Lorsch, 1992; Michael, 1993) find that managers are less effective when the board size is large, while others (Agrawal & Knoeber, 2001; Barnhart, Marr, & Rosenstein, 1994; Renneboog, 2000; Yermack, 1996) mention that board size relates negatively to firm performance and decision-making quality. Additional evidence suggests a negative relationship between board size and Tobin's

Q in Malaysia and Singapore (Mak & Kusnadi, 2005); between board size and profitability in Finland (T. Eisenberg et al., 1998); and between board size and operating performance improvements in the UK (Carline, Linn, & Yadav, 2002).

- **CEO Duality**

CEO duality (CD) means that a single individual work as both CEO and board chair. It is measured as a number of the BOD; a dummy variable where '1' represents that the same person occupies both roles and '0' otherwise.

- **Board Independence**

Board independence signifies the extent to which independent directors/outside directors are board members with no material relationship with the corporation and owning no shares in it. Board Independence (BI) represents the directors who are not related to the corporation or any person in it and do not own shares in it. Independent directors have no controlling shareholder votes, defining them as outsiders. Outside directors are individuals previously employed by financial or other non-financial corporations. It is measured by dividing 'number of independent directors' by 'total number of directors' (Lefort & Urzúa, 2008). Some papers suggest that when there is board independence, corporate governance, firm performance effectiveness and market value all increase (Black et al., 2006; Brickley et al., 1997; Hermalin & Weisbach, 1988). In the U.S., firms with higher numbers of outside directors are related to good firm performance and improvement, as well as to better board decision-making (Denis & McConnell, 2003; Hermalin & Weisbach, 2001; Kaplan & Minton, 1994). When performance is poor, the corporation may increase independent directors' numbers or replace inside directors with independent ones to improve performance and attract investors (Hermalin & Weisbach, 1988). Other authors show a negative relation between outside directors (board independence) and financial fraud and earnings manipulation (Klein, 2002).

- **Board Diversity: Gender**

The last corporate governance variable, Board Diversity (BD), is defined as the percentage of women on the board of directors. Many good-governance views assert a positive relation between board diversity and shareholder value. Board diversity is increasing over time (Brancato & Patterson, 1999; Dalton et al., 1999) as it enhances shareholder value, relates to improved financial performance and has a positive significant relationship with firm value. It helps to better reflect the marketplace, increases creativity and innovation, produces more effective problem-solving and enhances corporate leadership effectiveness (Carter et al., 2003). Heterogeneous groups are more effective at engaging in organisational change and responding rapidly to the market changes that enhance financial performance (Erhardt, Werbel, & Shrader, 2003).

4.4.3 Control Variables

The control variables were chosen based on previous studies that measure firm performance by ROA, ROE and Tobin's Q. Some studies use industry, size and leverage together (Ab Razak et al., 2008; Cho, 1998; Fauzi & Locke, 2012; Le & Chizema, 2011; Martínez, Stöhr, & Quiroga, 2007; Zeitun, 2009), or size, leverage and liquidity (Desoky & Mousa, 2012; Wahba, 2013); while Ullah (Ullah, 2016) added tangible assets to size, leverage and liquidity as a control variable. Others use size and leverage (Al Mutairi & Hasan, 2010; Bhattacharya & Graham, 2009; Lin & Fu, 2017; Maury, 2006; Ramalingegowda & Yu, 2012; Ruan et al., 2011); some choose to combine size with industry (Nanka-Bruc, 2009; Tsao, Chen, Lin, & Hyde, 2009) or leverage and industry (Xu & Wang, 1997). Size and tangible assets are used together (Cheung & Wei, 2006; Pham et al., 2011; Sulong, Gardner, Hussin, Sanusi, & McGowan, 2013). Other studies show one of the chosen control variables as leverage (Kapopoulos & Lazaretou, 2007) or age (Martínez et al., 2007; Nanka-Bruc, 2009; Ramalingegowda & Yu, 2012; Tsao et al., 2009; Ullah, 2016; Wahba, 2013).

- **Leverage**

Leverage (LEV) is defined as the value sensitivity of equity ownership with respect to changes in firm value (Welch, 2011). Leverage is the debt owed to large creditors, such as financial institutions, and total leverage is an aggregation of short- and long-term leverage (Sulong et al., 2013; Whiting & Gilkison, 2000). Financial leverage is included as one of the control variables because most of the finance and economics literature indicates that capital structure of the firm's impacts-investment decisions and other aspects of firm performance may constrain managers' decisions. Leverage is measured as the ratio of debt to total assets (debt-to-asset ratio) (R. Anderson et al., 2003; Bhattacharya & Graham, 2009; Harris & Raviv, 1991; Kochhar & David, 1996; Maury & Pajuste, 2005; Ruan et al., 2011; Ullah, 2016). Profitability is known as the best predictor for firm leverage; when profitability is high, the possibility of retaining earnings increases and the need for debt decreases. If financial distress costs are changed to the cost of benefits, then the firm will be forced to operate in an efficient way (Opler & Titman, 1994). A negative relationship between corporate performance and leverage indicates that firm performance is reduced when leverage is high; operating profits are lower, and the firm may lose market share. More highly leveraged firms respond faster to a decline in firm performance because its value can decrease before it is forced into bankruptcy (Altman, 1971; Michael, 1989). Firms with poor performance will be encouraged to sell their assets to repay the debt (Lang & Stulz, 1994; Stulz, 1990). Other control variables, such as size and firm age, are suggested as relating to the firm-performance outcome, the reason they are chosen for this thesis (R. Anderson et al., 2003; Braun & Sharma, 2007; Tsao et al., 2009).

- **Firm Size**

The size of the firm is included in the regression models as a control variable and measured as the natural log of assets to transform total assets (V. Chen, Tsao, & Chen, 2013; Weiner & Mahoney, 1981). Firm size can be a source of competitive advantage, as bigger firms are supposed to be more efficient than smaller firms. Size is a relevant variable affecting firm performance, as large firms are expected to have more resources, enhancing their ability to have and process information (Su, Xie, & Li, 2011; Wahba, 2008, 2013). Larger companies also are expected to be less efficient

than smaller ones, due to top managers' loss of control over strategic and operational activities, resulting in a decrease in company performance (Ab Razak et al., 2008; Himmelberg, Hubbard, & Palia, 1999; Lang & Stulz, 1994). Arguably, size is negatively related to ownership (Harold Demsetz & Lehn, 1985) because owning a percentage of a large firm is harder than owning the same percentage of a small firm (Bhattacharya & Graham, 2009; Hawawini, Subramanian, & Verdin, 2003; Lun & Quaddus, 2011).

Size also affects firm performance negatively because of bureaucratic intervention in larger firms (Xu & Wang, 1997), higher agency costs (Sun & Tong, 2003) and less flexibility in responses to changing market conditions. On the other hand, larger firms lead to better performance by benefitting from economies of scale (Lin & Fu, 2017). Firm size is positively related to sales growth, which affects firm profitability. Corporate-governance mechanisms and firm size and performance affect board role. (Claessens, Djankov, Fan, & Lang, 2002) recommend that good corporate governance affects and benefits the firm with lower costs of capital, easier financing, improved stakeholder and better company performance. The most commonly used term associated with the firm size is firm age, discussed next.

- **Firm Age**

The literature shows that age impacts a company's performance and its strategic choices over time (Jovanovic, 2001; Levesque & Minniti, 2006; Marshall et al., 2006; Sorensen & Stuart, 2000). Ageing enhances experience and competence and raises firm performance, enabling companies to acknowledge and achieve new technological opportunities (Acemoglu, Aghion, Lelarge, Reenen, & Zilibotti, 2007; W. Cohen & Levinthal, 2000). Inertia is one of the reasons that ageing affects firm performance negatively (Cucculelli, Mannarino, Pupo, & Ricotta, 2014; D. Miller & Shamsie, 2001). Most studies published in top academic journals in economics and management find that firm age is used too much. For instance, the journal platform JSTOR recognises more than 3,000 contributions that address firm age, published from the 1980s until 2017 (Coad, Holm, Krafft, & Quatraro, 2018). Firm age is used as a control variable because it reflects organisational characteristics, and as the life cycle of the firm changes, its priorities vary (Wahba, 2013). Firm age is also used as a

control variable by taking the number of years from the date of incorporation to the year of analysis (Michaelas, Chittenden, & Poutziouris, 1999).

- **Asset tangibility**

Asset tangibility (TANG) is included as a control variable. It represents the firm's asset structure, which impacts directly its capital-structure choice and operating performance. TANG is measured as the ratio of fixed assets to total assets. Firms with a lower proportion of fixed assets tend to perform better, resulting in a negative relationship between the two variables (Ab Razak et al., 2008; Lin & Fu, 2017; Ullah, 2016; Wahba, 2013; Weill, 2008). Tangible fixed assets can be used as collateral to minimise lenders' risks. They support an inverse relationship between firm performance and asset tangibility (Rajan & Zingales, 1995; Titman & Wessels, 1988).

- **Liquidity Ratio LIQ**

Liquidity is another control variable related to firm performance, measured by dividing CA (current assets) by CL (current liabilities) (Lappalainen & Niskanen, 2012). The ratio suggests that if the firm's performance has high liquidity positions, it can pay current obligations; when the ratio increases/decreases, so will profitability. This means that the more liquid the assets, the more potential the company has to earn higher income from investment and contribute to better firm performance (Camelia & Vasile, 2014). Previous studies found inconclusive results about the liquidity effect on firm performance; a negative relationship between the liquidity ratio and performance is found by Dionne & Garand (Dionne & Garand, 2003), and a positive relationship is also concluded by Cho (Cho, 1998) and An & Naughton (An & Naughton, 2009). Liquidity is predicted to impact significantly on firm performance (Amiruddin, 2013).

The previously mentioned references use resource-based theory and agency theory. They define firm size as the natural log of total assets and leverage as the value sensitivity of equity ownership with respect to changes in firm value, measured by dividing total debt by total assets. Firm age represents the years since foundation, and the liquidity ratio is measured by dividing current assets by current liabilities. The last control variable is tangible assets, the result of fixed assets divided by total assets.

4.4.4 Dummy Variables

Finally, there are two variables used as dummy variables in the models. The dummy variables used commonly in previous literature are for the time that can control for macroeconomic changes (Ferreira & Matos, 2008; Lin & Fu, 2017; Yuan, Kang, Zhao, & Hu, 2008) and industry (Vandenbroucke, Knockaert, & Ucbasaran, 2016; Wahba, 2010, 2013). These dummy variables are introduced to control for industry and time effects on ownership structure, corporate-governance variables and firm performance. The industry as a control variable has 14 dummy variables, used to clarify 14 different industries: (1) Basic Resources, (2) Chemicals, (3) Construction and Materials, (4) Consumer Goods, (5) Consumer Services, (6) Healthcare and Pharmaceuticals, (7) Industrial Goods and Services and Automobiles, (8) Oil and Gas, (9) Personal and Household Products, (10) Real Estate, (11) Retail, (12) Media, (13) Technology, (14) Telecommunications. There are some analyses which require using more dummy variables as for Revolution and for the different ownership structure.

Table 4.3 summarises all these variables and differentiates between the definitions, measurements, sources of data and the thesis hypotheses.

Table 4.3: Variables Definitions, Measurements and Hypothesis			
Variable	**Definition and Measurement**	**Data Source**	**Hypothesis**
Corporate Performance	Firm's overall financial health over a certain period of time. It is measured by ROA (ratio of net income to the total assets), ROE (ratio of net income to the book value of equity) and Tobin's Q (firm's market value divided by the total assets or firm's market value added by the DEBT and divided by the total assets).	Income statement and balance sheet from EGX	
Ownership Structure Variables			Hypothesis 1: There is a significant impact of the Egyptian Revolution on the relationship between ownership structure and firm performance
Block Ownership	It is measured by the per cent of shares owned by each type of the ownership and the exceeding per cent represents the ownership type. .	Ownership structure reports published by each company for each year at the Egyptian stock market	Hypothesis $1a_1$: There is a positive relationship between block ownership and firm performance before the Revolution Hypothesis $1a_2$:There is a negative relationship between block ownership and firm performance after the Revolution.
Government/ State Ownership			Hypothesis $1b_1$: There is a positive relationship between government ownership and firm performance

			before the Revolution. Hypothesis $1b_2$: There is a relationship between government ownership and firm performance after the Revolution.
Institutional Ownership			Hypothesis $1c_1$: There is a positive relationship between institutional ownership and firm performance before the Revolution. Hypothesis $1c_2$: There is a relationship between institutional ownership and firm performance after the Revolution
Managerial/ Director Ownership			Hypothesis $1d_1$: There is a positive relationship between managerial ownership and firm performance before the Revolution. Hypothesis $1d_2$: There is a relationship between managerial ownership and firm performance after the Revolution.
Corporate Governance Variables			There is a significant impact of the Egyptian Revolution on the relationship between corporate governance and firm performance

Board size	Number of directors (BOD) elected to govern the corporation.	Ownership structure reports published by each company for each year at the Egyptian stock market	Hypothesis $2a_1$: There is relationship between board size and financial performance before the Revolution. Hypothesis $2a_2$: There is a positive relationship between board size and financial performance after the Revolution
CEO duality	CEO duality means that a single individual works as CEO and board chair. It is measured by a dummy variable used as "1" represents that same person is the CEO and board chair, and "0" otherwise.		Hypothesis $2b_1$: There is a relationship between CEO duality and firm performance before the Revolution. Hypothesis $2b_2$: There is a negative relationship between CEO duality and firm performance after the Revolution.
Board independence	An independent director/outside director is a board director who does not have any material relationship with the corporation and does not own shares in the corporation. It is measured by the per cent of outside directors to the per cent of all directors.		Hypothesis $2c_1$: There is a positive relationship between board independence and firm performance before the Revolution. Hypothesis $2c_2$: There is a relationship between board independence and firm performance after the Revolution.
Board diversity (gender)	The per cent of women on the board of all directors.		Hypothesis $2d_1$: There is a positive relationship between board gender diversity and firm performance before the Revolution.

			Hypothesis $2d_2$: There is a relationship between board gender diversity and firm performance after the Revolution.
Control Variables			
Firm Size	Natural log of the book value of the total assets of a firm.	Income statement and balance sheet from EGX	
Leverage	The value sensitivity of equity ownership with respect to changes of the firm value (total debt to total assets).		
Tangible Assets	It is fixed assets divided by total assets.		
Liquidity	It is measured by dividing current assets by current liabilities.		
Firm Age	The years since foundation.		

4.5 Multiple Regressions

Multiple regression analysis is one of the parametric techniques that is applied if the data is assumed to be normally distributed; however, regression analysis is properly used for validity against non-normality. Multiple regression analysis is the thesis of how a dependent variable is related to two or more independent variables. This analysis is used when testing more than two independent variables for their descriptive influence against one dependent variable, while correlation analysis is chosen when only one independent variable and one dependent variable are tested. Multiple linear regression is one of the most popular methods used to study the relationship between an outcome variable and several predictors, or independent, variables. This thesis uses regression analysis, in which the ordinary least squares (OLS) technique is employed to explore the relationship between ownership structure and corporate governance on the one hand, and firm performance on the other hand. OLS is used with for regressions and clusters, which are industries and years, to be close to the panel data analysis results. OLS was selected after confirming that the regression models do not suffer from a multicollinearity problem and after calculating variance inflation factors (VIF) for all the chosen variables in the models. The VIF values are insignificant, and all the values are below three. This indicates that there are no concerns in relation to multicollinearity among the independent variables in all of the models. To test the hypothesis, when the *p*-value is less than .05 (the standard significant level), then the independent variables affect the dependent variable. Otherwise, they have no relationship. They are used to test the hypotheses in this thesis (Sulong et al., 2013).

4.5.1 Newey and West (1987) Pooled Regression

For experimental testing of this thesis' hypotheses, Newey and West pooled regression, as well as fixed and random effects regression, are employed by using STATA. The dependent variables of firm performance (ROA, ROE, Tobin's Qa, Tobin's Qb) are regressed against Revolution impact, ownership-structure, corporate-governance variables and control variables. The four firm performance models are estimated by using Newey and West (1987) pooled regressions for comparison through the entire sample over the ten-year test period from 2008 to 2017, to examine the association between firm performance and the ownership-structure and

corporate-governance variables. Compared to a cross-sectional approach, pooled regression has some advantages, such as allowing the researcher greater flexibility in modelling differences across firms (Greene, 2012) and improving identification of significant-relationships (Gujarati, 2003). Other advantages include increasing sample size, giving more variability and informative data among cross-sections and over time, more degrees of freedom and efficiency and less collinearity among variables (Gujarati, 2003). The Newey and West (1987) regression controls the heteroscedasticity and autocorrelation effects (Francis et al.).

4.6 Panel Data with Fixed and Random Effects

Estimation techniques and theoretical results have a rich development environment that has increased the interest in the panel-data analysis, especially in the last decade (Greene, 2012). Panel data analysis and cross-sectional and time-series analysis, both have advantages and disadvantages. The main advantage of panel-data analysis is that it gives the researcher more flexibility, enabling pooling and analysing individual time series across several firms simultaneously, due to the data nature (same firms repeated observations over many periods). It eases the development of a model for more complicated and realistic data to clarify why firms perform contrarily during different periods. Panel datasets are larger than cross-sectional and time-series ones. Accordingly, panel data estimations are more accurate than other sources (Verbeek, 2012). Panel datasets are more efficient estimators when the model includes exogenous variables, for measuring their effects when compared with cross-section datasets or two data sources combined together (Verbeek and Nijman, 1992). Another advantage is that they reduce identification problems and control for some omitted variable types. In the case of fixed-effects and random-effects models, a fixed-effects model with omitted variables that differ between cases will be controlled but constant over time. On the other hand, a random-effects estimator will control for variables varying differently in each case and over time (Hsiao, 2003). However, panel data also has some disadvantages, as shown below. First, it cannot be assumed that different observations are independent when observing the same firms over time is repeated. Therefore, the analysis can be complicated when the models are nonlinear and dynamic. Second, the panel data has a problem, mostly with the missing observations, but it is argued that missing observations can be supposed as a rule in the panel datasets (Verbeek and Nijman, 1992, p. 681)

4.7 Econometrics Analysis

4.7.1 System Generalised Method of Moments

The relationship between ownership structure, corporate governance and firm performance is endogenous in nature and has lagged dependent variable among the covariates (Bushee, 2004; Harold Demsetz & Villalonga, 2001b) which requires the use of appropriate estimation techniques. Following the literature, on dynamic panel data models, the system generalised method of moments is used to address this endogeneity problem (Blundell & Bond, 1998; Colombo et al., 2013). To address an endogeneity problem regarding the relationship between ownership structure types and corporate governance with firm performance, the author uses the system generalized method of moments (SGMM) estimator to examine this relationship. The data used in the thesis is linear dynamic panel-data which requires models including lags of the dependent variable. Notably, with regard to the validity of SGMM estimator, Hansen tests and AR2 tests are used to exclude the presence of autocorrelation (Lin & Fu, 2017).

This thesis adopts the SGMM to deal with correlation between the independent variables and the error terms, heteroskedasticity, contemporaneous correlation across the residuals, and autocorrelation in the residuals. This explains why the author did not use the two-stage or three-stage least squares methods to study this relationship as previous studies. The fixed or random effect panel can be used to discuss the limitations of estimating the static model (Model 1**).** The error term of these two models may give biased results because it is maybe correlated with the lagged variable. Instruments variables as lags of dependent and explanatory variables can be used to solve this correlation problem (Arellano & Bond, 1991). SGMM estimation control for the time-specific effects by including time dummy variables and eliminate data cross-sectional dependence. Nevertheless, the SGMM methodology has some weaknesses as follows. First, a significant finite sample bias can result from using a large instruments number (Roodman, 2009) which is not the case here in this thesis. Second, this methodology is only valid when the instruments are uncorrelated with the error terms. It can be followed up with Hansen J-test and AR(2), post estimation specification tests, to eliminate autocorrelation (Arellano & Bond, 1991;

Khémiri & Noubbigh, 2018; Roodman, 2009). Hence, this thesis uses Hansen J- Statistic and AR (2) to identify and test validity and residuals autocorrelation.

4.7.2 Principal Component Analysis (PCA)

Clearly, the impact of the Egyptian Revolution on the relationship between ownership structure and firm performance and on the relationship between corporate governance and firm performance warrants further exploration. The principal component analysis is used for further examination. PCA consists of expressing a lower number of variables which are linear combinations of the original response vectors. The principal components contain the maximum data variance and to be orthogonal (El Barbri et al., 2007). Hence, the principal components analysis allows for data reduction and determines latent information from the raw data set.

4.8 Summary

This chapter identifies the thesis' research philosophy, showing that the thesis uses the quantitative approach which regularly uses statistical tests to be able to conclude and study the information (Locke et al., 2010). It shows the research methodology, beginning with data selection, data collection sources, and different proxies for measuring firm performance, including return on assets, return on equity and Tobin's Q. Then reaching the sample size description and the sample descriptive statistics in terms of information about all the variables. Finally, the chapter discusses the SGMM, principal component analysis and regression analysis used to test the main model. The next chapter starts the main empirical analysis.

Chapter 5: Empirical Analysis

5.1 Introduction

In this chapter, the impact of corporate governance and ownership structure variables on firm performance is examined to explain the variations in outcomes.

Corporate governance is an important variable that determines a corporation's management and monitoring approaches to encourage company controllers who are too narrowly focused. It also helps organisations to maximise their value and ensure the attainment of a return on the investment for the suppliers of the capital (Denis & McConnell, 2003; Shleifer & Vishny, 1997). Accordingly, this chapter will examine CG impact on firm performance and the Revolution impact on this relationship.

Ownership structure variables are also included to provide a more comprehensive assessment of performance with the governance variables. Therefore, the author focuses on the extent to which what is reported is positive and negative for the four models (ROA, ROE, Tobin's Qa, and Tobin's Qb) with the previously mentioned variables. This chapter will examine ownership structure types impact on firm performance and the Revolution impact on the relationship between ownership structure types and firm performance.

In addition, this chapter examines the association between these variables and links the results of this thesis with the findings of previous studies. This chapter includes OLS analysis, SGMM analysis, and PCA method. These analyses are divided into descriptive statistics, correlation analysis, SGMM main results, ownership structure types and corporate governance variables with each firm performance measure separately, revolution impact on ownership structure types, corporate governance and firm performance, comparison between pre-revolution and post-revolution with a conclusion, PCA main results, impact on FP using composite variables (OWN and GOVN) with revolution, each ownership structure type with each firm performance measure and industry impact on ownership structure types, corporate governance and firm performance. Finally, the chapter also discusses regression assumptions tests (Heteroskedasticity, Multicollinearity of independent variables, VIF values with all FP models, OLS main results, panel data analysis fixed and random effects, and comparison between the results of OLS and SGMM regressions.

5.2 Main Results

The main results of the analysis of this thesis will be discussed in details in the following parts starting with descriptive statistics results then SGMM results ending with PCA findings.

5.2.1 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in this thesis. They provide simple summaries about the sample and the measures used, along with the dependent and independent variables utilised in this study, including 101 companies with 992 observations. Table 5.1 shows the data measures. Four methods were used to measure firm performance (FP). The first measurement, return on assets (ROA), has an average value of 5% that varies between –3% and 21%, with a median value of 4%. Thus, since the standard deviation (*SD*) is 6%, which is close to zero, the ROA data have little variation. In contrast, other researchers have found the mean for the ROA (Egypt) to be 7.75% (Wahba, 2013), 8% (Azzam et al., 2013), and 2.53% (Desoky & Mousa, 2012), and other countries 1.75% (Visintin et al., 2017), 5.518% (Seo, 2017),. The differences are because these studies covered different periods of time. The second measurement, return on equity (ROE), has a mean value of 9%, a minimum value of –0.07, and a maximum value of 0.36, with an SD of 11%, which appears to be greater than the value for ROA and with a greater variation. In contrast, other researchers have found the mean for ROE to be 0.17% (Azzam et al., 2013) (in Egypt), 2% (Kim, Mauldin, & Patro, 2014), and 12.40% (Yan Lam & Lee, 2008). The last FP measurement is Tobin's Q with an average value of 0.89 for Tobin's Qa and 1.13 for Tobin's Qb, along with a high SD (0.69 for Tobin's Qa and 0.7 for Tobin's Qb), minimum values of 0.16 and 0.34, and maximum values of 2.74 and 2.97, respectively. In other studies, researchers have found the mean for Tobin's Q to be 4.381 (Wahba, 2013), 12 (Fauzi & Locke, 2012) in Egypt, 58.65 (Andow & David, 2016), 1.21 (Issarawornrawanich, 2015), and 38 (Sulong et al., 2013). IOWN and GOWN have mean values of 19.77% and 21.41%, respectively, and median values of 2.18% and 3.03%, respectively. Because the SD values are not close to zero, the GOWN and IOWN data are not close to the mean values, which means both variables' data have a greater variation and bias. In contrast,

various researchers have found the mean for GOWN to be 22% (Farag & Mallin, 2016), 11% (Wahba, 2013) in Egypt, and 21% (Firth et al., 2016). Table 5.1 details the descriptive statistics for the variables used in this thesis.

Table 5.1: Descriptive Statistics

Variable	N [1]	Mean[2]	Median[3]	Min	Max	SD[4]
ROA	992	0.05	0.04	-0.03	0.21	0.06
ROE	992	0.09	0.07	-0.07	0.36	0.11
Tobin's Qa	992	0.89	0.65	0.16	2.74	0.69
Tobin's Qb	992	1.13	0.93	0.34	2.97	0.7
MOWN	992	17.19%	1.45%	0%	74%	24.24%
BOWN	992	3.78%	0%	0%	25.90%	7.38%
GOWN	992	21.41%	3.03%	0%	92.93%	31.14%
IOWN	992	19.77%	2.18%	0%	82.89%	27.30%
BS	992	7.95	8	5	13	2.5
BI	992	0.73	0.78	0.36	0.92	0.167
BD	992	0.07	0	0	0.29	0.09
CD	992	0.73	1	0	1	0.45
LIQ	992	1.85	1.42	0.45	4.99	1.21
SIZE	992	8.89	8.87	7.74	10.24	0.73
LEV	992	0.23	0.20	0.02	0.61	0.18
AGE	992	39.07	36	18	79	18.07
TANG	992	0.49	0.50	0.05	0.92	0.25

[1] Number of cases (N): - that represent number of cases per each dependent variable.
[2] Mean :- is central value over data
[3] Median: - is the number separating the higher half of a data from the lower half
[4] SD: - measure used to quantify the amount of variation or dispersion of data
Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided

5.2.2 Correlation Analysis

The relationships between each construct are tested using correlation analysis to examine how the analysis dimensions are correlated with each other and whether the variables are strong or weak and correlated positively or negatively. The relationships between variables are defined by the type and direction of this relationship. The next table presents a correlation matrix that describes the relationships of all variables with the degree of significance and the coefficient variables. Significance is set between 0 to 0.10. For significant relationships based on correlation factors, the relationship type (increase–decrease) can be defined as follows: if the coefficient has a positive sign, it is an increase, and if negative, it is a decrease. The value of the coefficient defines the degree of the relationship. If the value of the coefficient is between 0 and 0.01, there is little or no relationship; if it is between 0.01 and 0.05, the variables have a weak relationship; and if it is between 0.05 and 0.10, the variables are strongly related.

The Pearson's correlation matrix shows the relationship of all the independent variables with ROA, ROE and Tobin's Q. Pearson's correlation of each independent variable's pair should not exceed 0.80, since any independent variable with a coefficient in excess of 0.80 exhibits multicollinearity (Bryman & Cramer, 1997). STATA provides collinearity diagnostics, including collinearity statistics (tolerance and VIF), condition index and variance proportion. Therefore, the results do not produce any evidence of multicollinearity problems in the regression models (Böhm et al., 2013). Researchers must take care not to include two variables with a bivariate correlation higher than 0.7 in the analysis (Tabachnick & Fidell, 1996). Therefore, the potential for multicollinearity was tested between the independent variables and linear regressions of all independent variables on ROA, ROE, and Tobin's Q were performed. None of the VIF factors obtained a value exceeding 3, as mentioned in Chapter 4. This confirms that there is no multicollinearity problem for the regression analyses. Therefore, the inter-correlation between the mentioned independent variables does not appear to be problematic, and multicollinearity is not a serious concern in this thesis. This is explained in the next few paragraphs by testing the normality of residuals, heteroskedasticity and multicollinearity of independent variables.

Table 5.2 presents the Pearson correlation coefficients matrix and shows a number of highly positive significant associations among dependent variables (ROA, ROE and Tobin's Qa and Tobin's Qb), and GOWN and CD. Similar results have been reported other studies (Ab Razak et al., 2008), which found a highly positive significant relationship between GOWN and CD with only ROA. When performance is measured by ROA and Tobin's Q, a positive relationship is found (Zeitun, 2009). However, in contrast to the results reported, there is a strongly significant negative association between Tobin's Q and GOWN (Wahba, 2013). When performance is measured by ROE, a negative relationship is found (Zeitun, 2009), as corroborated by a number of other studies (Claessens et al., 2002; La Porta et al., 1997; LI et al., 2009; Peng, 2004; Shleifer & Vishny, 1997).

As regards the strongly significant positive associations, these are also shown between Tobin's Qa and Tobin's Qb on the one hand, and BS and BD on the other. The relationship between BD and Tobin's Q has been found to be positive and significant in previous studies (Reguera-Alvarado et al., 2017). However, the table also reveals the existence of weak positive associations between the same independent variables of BS with ROA and ROE, MOWN with other dependent variables of FP, namely ROA and BI with Tobin's Qb. This finding is consistent with the findings of other studies (Fauzi & Locke, 2012), which have exhibited a positive relationship between BS and MOWN with FP (ROA), and a positive correlation between BS and BI and Tobin's Q. There is a strongly significant negative relationship between the dependent variables (ROA, ROE) and IOWN, while there are a number of moderately significant negative associations among the dependent variables (ROA and ROE) and BI, and also between (Tobin's Qa and Tobin's Qb) and MOWN and BOWN.

Table 5.2: Correlations Matrix[5]

	ROA	ROE	Tobin's Qa	Tobin's Qb	MOWN	BOWN	GOWN	IOWN	BS	BI	BD	CD	LIQ	SIZE	LEV	AGE	TANG
ROA	1																
ROE	0.87***	1															
Tobin'sQa	0.37***	0.32***	1														
Tobin's Qb	0.33***	0.31***	0.96***	1													
MOWN	0.04*	0.01	-0.06**	-0.06**	1												
BOWN	0.03	0.01	-0.06**	-0.06**	0	1											
GOWN	0.16***	0.15***	0.16***	0.14***	-0.38***	-0.22***	1										
IOWN	-0.13***	-0.09***	-0.04*	0.01	-0.37***	-0.19***	-0.37***	1									
BS	0.05*	0.05*	0.07***	0.08***	0.05*	-0.18***	-0.01	0.14***	1								
BI	-0.06**	-0.06**	0	0.04*	0.05*	-0.07***	-0.15***	0.15***	0.35***	1							
BD	0	-0.01	0.07***	0.09***	0.11***	-0.04*	-0.08***	-0.01	0.21***	0.16***	1						
CD	0.15***	0.11***	0.10***	0.06**	0.01	0.07***	0.18***	-0.25***	-0.04*	-0.25***	-0.04*	1					
LIQ	0.25***	0.07***	0.18***	0.08***	0.06**	-0.02	0.04	-0.17***	0.01	-0.06***	-0.05**	0.12***	1				
SIZE	0.07***	0.18***	-0.20***	-0.16***	-0.01	-0.12***	0.07***	0.19***	0.31***	0.05*	-0.04	-0.15***	-0.29***	1			
LEV	-0.15***	-0.06**	-0.13***	0.13***	-0.03	0	-0.09***	0.20***	0.06***	0.14***	0.07***	-0.12***	-0.36***	0.17***	1		
AGE	0.08***	0.16***	0.12***	0.10***	-0.18***	0.01	0.25***	-0.09***	-0.06**	-0.03	0.08***	0.08***	-0.09***	-0.02	-0.10***	1	
TANG	-0.18***	-0.24***	-0.11***	-0.12***	0.07***	0.05*	-0.08***	0.06***	0.04*	0.17***	0.12***	-0.06**	-0.35***	0.16***	-0.03***	-0.07***	1

*****. Correlation is significant at the 0.01 level (2-tailed); **. Correlation is significant at the 0.05 level (2-tailed) *. Correlation is significant at the 0.10 level (2-tailed).**

[5] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

The findings are consistent with the moderate negative relationship of BI but with ROA (Abdul Rahman & Ali, 2006; Nanka-Bruc, 2009). Furthermore, BOWN and BD, when measured by ROA and ROE, have no significant effect.

The next part will discuss multiple regression analysis then will examine the econometrics analysis results using SGMM estimator and PCA method.

5.2.3 Multiple Regression Analysis

Multiple regression analysis is used to explain how the firm performance is related to all the independent variables and to show their descriptive influence against this dependent variable. Most of the previously mentioned studies concentrated on only ownership structure and the corporate governance variables' effect on FP; there are no studies showing the Egyptian revolution effect on performance, which motivated the author to compare the regression results with revolution as a variable and without it. Table 5.2 does not show the revolution effect but presents the regression results, indicating that the model's adjusted R2 for the ROA, ROE, Tobin's Qa and Tobin's Qb are 27%, 26%, 23% and 23%, respectively. This is the multiple coefficients of determination, giving the total proportion variation for the endogenous variable explained by the exogenous variables jointly. Hence, it signifies that 23% to 27% of the total variation in the performance of Egyptian firms is caused by their ownership structure and corporate governance variables after controlling for the effect of firm size, leverage, liquidity ratio, firm age, assets tangibility, industry and time effects, taking into account the sample size and the number of independent variables. In this thesis, the coefficients of government ownership are found to be positively significant at 1% with ROA, ROE, Tobin's Qa and Tobin's Qb. These studies supported the finding that government ownership has an important impact on FP and is positively significant at the 10% level for Tobin's Q (Ab Razak et al., 2008; Ang & Ding, 2006; Tian & Estrin, 2008) and significant at the 5% level (Ang et al., 2000). The BOWN coefficient is positively significant at 1% with ROA and at 10% with ROE, which contradicts what is found in the literature and could be the result of the specific nature of ownership in Egypt. The MOWN coefficient is positively significant at 1% with ROA, ROE, Tobin's Qa and Tobin's Qb. Consistent with this finding, the MOWN coefficient exhibited a 5% and 10% significant positive relationship with FP in

other studies when measured with Tobin's Q and ROA, respectively (Fauzi & Locke, 2012; Hossain, Prevost, & Rao, 2001).

Table 5.3: Results Table[6]

	ROA	ROE	Tobin's Qa	Tobin's Qb
MOWN	0.00137*** (3.33)	0.00152*** (2.76)	0.0033*** (2.71)	0.0035*** (2.84)
BOWN	0.00177*** (2.62)	0.00185* (1.69)	-0.00164 (-0.22)	-0.00125 (-0.081)
GOWN	0.00134*** (3.72)	0.00142*** (2.65)	0.0047*** (4.52)	0.0050*** (4.79)
IOWN	0.001095 (0.97)	-0.001035 (-0.21)	0.0043*** (3.80)	0.0042*** (3.66)
BS	0.00106 (0.075)	-0.00146 (-0.31)	0.028*** (3.23)	0.027*** (3.07)
BI	0.016 (1.38)	0.029 (1.44)	0.23* (1.73)	0.25* (1.84)
BD	-0.0092 (-0.44)	-0.0012 (-0.034)	-0.11 (-0.44)	-0.091 (-0.36)
CD	0.013*** (2.95)	0.018** (2.27)	0.056 (1.17)	0.046 (0.97)
SIZE	0.021*** (7.29)	0.052*** (10.1)	-0.20*** (-5.63)	-0.21*** (-5.67)
LEV	-0.042*** (-3.29)	-0.068*** (-2.84)	-0.35** (-2.44)	0.71*** (5.01)
LIQ	0.0090*** (4.46)	-0.0013 (-0.38)	0.029 (1.30)	0.029 (1.26)
AGE	0.00125** (2.21)	0.00198*** (4.34)	0.0043*** (3.18)	0.0046*** (3.36)
TANG	-0.035*** (-3.67)	-0.11*** (-6.06)	0.015 (0.14)	0.029 (0.26)
Constant	-0.17*** (-5.31)	-0.37*** (-6.36)	1.79*** (5.01)	1.79*** (4.98)
N	992	992	992	992
adj. R2	0.265	0.257	0.227	0.226

[6] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Pooled Regression using both industry and year as dummies

This result supports the agency theory: when MOWN is higher, agency costs are reduced and FP is increased. Other studies supported the coefficient of MOWN as being negatively significant or having a non-linear significant relationship when associated with FP and measured by ROE and Tobin's Q, which can be supported by the entrenchment effect argument (Andow & David, 2016; Harold Demsetz, 1983; Harold Demsetz & Lehn, 1985; Desoky & Mousa, 2012; Drakos & Bekiris, 2010; Fama & Jensen, 1983b; McConnell & Servaes, 1990; Morck et al., 1988; Sulong et al., 2013). Moving to the CD, this coefficient is positively significant at 1% with ROA and positively significant at 5% with ROE only. In contrast, the results of the CD in previous studies are negatively significant at 5% in ROA and Tobin's Q, showing that firms with a CEO who is also the board chairman have lower performance (Issarawornrawanich, 2015). The coefficient of BS is positively significant at 1% with Tobin's Qa and Tobin's Qb. In previous studies, it was found that the BS coefficient exhibits a 5% significant and positive relationship with FP for Tobin's Q and ROA, consistent with the agency and resource dependency theory that a larger BS creates greater firm value. The result indicates that large boards enhance Egyptian FP, providing better supervision, effective monitoring mechanisms, increasing BI and reducing the managerial entrenchment, therefore increasing FP (Coles et al., 2008; Fauzi & Locke, 2012). Contradictory results can be caused by the different data characteristics and methods which are also found in the US and New Zealand (Bhagat & Black, 2001; Hossain et al., 2001; Yermack, 1996). IOWN is positively significant at 1% with Tobin's Qa and Tobin's Qb. BI is positively significant at 10% with Tobin's Qa and Tobin's Qb. Previous studies also found positive and significant coefficients for BI for ROA at 1% and 5%, respectively (Fauzi & Locke, 2012; Issarawornrawanich, 2015; Paul, Ishii, & Metrick, 2003). This is because outside directors are more effective in monitoring and developing the firm's reputation. In contrast, the BI for Tobin's Q is negative and significant at 5% (Bhagat & Bolton, 2008; Reddy, Locke, & Scrimgeour, 2010). This can be the result of a very high BOWN concentration, which interferes with effective firm corporate governance. A non-significant effect of BI on FP is also found (Hossain et al., 2001; Reddy et al., 2010). BD is not significant in this regression model.

Regarding the control variables, firm size is significant at 1% with the four models; leverage is significant at 1% with ROA, ROE, and Tobin's Qb and significant at 5% with Tobin's Qa;

firm age is significant with all models except ROA and significant at 5%, while liquidity is significant at 1% with only ROA.

5.2.4 Regression Assumptions

Ordinary least square regression is the most commonly used method in the literature to test the statistical relationship of firm performance to corporate governance and ownership structure. Assuring use of OLS regression and preventing distortion of the results requires checking that the data have met the OLS regression assumptions: normality of residuals, heteroscedasticity and no multicollinearity of independent variables (Field, 2005).

- **The Normality of Residuals**

By using the STATA, the normality assumptions inspected, as follows. Firstly, by processing the regression, then starting the predict command, next running the 'Kdensity' command, creating the Kernel-density plot with the normal option of the thesis main regressions. Figure 5.1 shows that there are several normality problem which can be ignored, as Gujarati (2003) and Brooks (2008) document, if the sample size were sufficiently large.

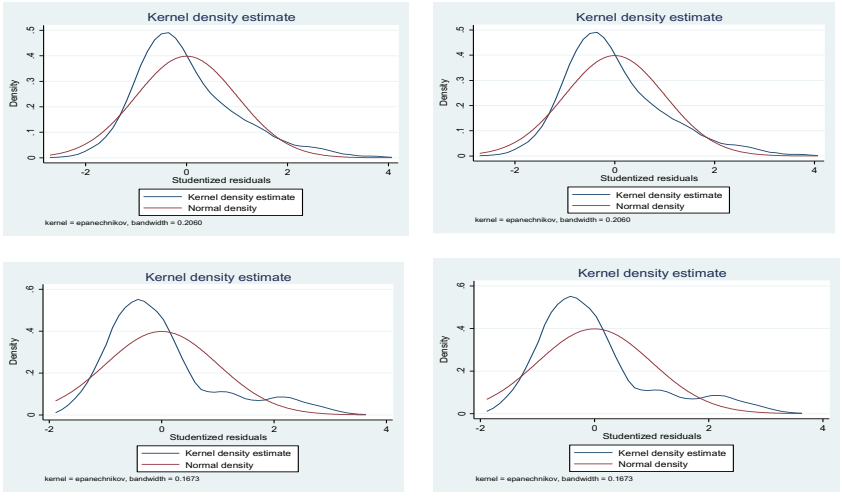

Figure 5.1: A Kernel Density Plot

- **Heteroskedasticity**

Any error term variance is supposed to be constant and random for all independent variables' values and if it is non-constant, then the residual variance is called 'heteroscedastic'. The Breusch-Pagan and White tests are used to check the heteroscedasticity by using the commands 'hettest' and 'imtest' for running these tests. Table 5.4 shows that the p-values are small (0.001), while they should be 0.5, which reject the null hypothesis that the residuals variance is homogenous. The Newey and West (1987) standard error pooled regression can solve this problem by controlling the heteroscedasticity and autocorrelation effects (Francis, LaFond, Olsson, & Schipper, 2005).

Table 5.4: Heteroskedasticity Tests

Regression	The Breusch-Pagan		The White test	
	Chi^2	p-value	Chi^2	p-value
ROA Model	14.63	0.0011	443.60	0
ROE Model	21.01	0	434.24	0
Tobin's Qa Model	106.49	0	513.38	0
Tobin's Qb Model	81.40	0	524.65	0

- **Multicollinearity of Independent Variables**

It is assumed that there will be a linear association between the dependent variable and the independent variables and that there will be no perfect linear association between any of the independent variables. Multicollinearity occurs when there is a strong correlation between two independent variables, which means that two predictors are measuring the same thing (see Field, 2005, p. 174). This means that significant variables on the dependent variable may seem to be nonsignificant in the model due confounded effect by another independent variable. The researcher examined the non-multicollinearity assumption of independent variables using the STATA program. The Variance Inflation Factors (VIFs) are considered to measure the multicollinearity severity in each regression analysis. VIFs exceeding 10 are thought to show severe multicollinearity problems (Field, 2005). A value of

10 has been recommended as the maximum level of VIF (Marquardt, 1970; Neter, Wasserman, & Kutner, 1990; Kennedy, 1992' Hair, Anderson, Tatham, & Black, 1995). This value corresponds to the tolerance value of .10 (1/.10 = 10). Though the maximum acceptable VIF value, which means the minimum level of tolerance (Tabachnick & Fidell, 2001), of 5 (Rogerson, 2001) and even 4 (Pan and Jackson, 2008). However, a recommended minimum value as high as .20 has been suggested (Menard, 1995) and a value of .25 appears in the literature (Huber & Stephens, 1993). The researcher concluded that a tolerance level less than 0.20 or 0.10 and/or a VIF of 5 or 10 and above indicate a multicollinearity problem.

Tables 5.5, 5.6, 5.7 and 5.8 provide the VIF values showing that none of the VIFs is exceeding three, suggesting that there is no multicollinearity problem. A value of 10 has been recommended for the maximum level of VIF (Damodar, 2009; Field, 2013; Gujarati, 2003); Marquardt, 1970; Neter, Wasserman, & Kutner, 1990; Kennedy, 1992; Hair, Anderson, Tatham, & Black, 1995).

Table 5.5: The VIF Values (ROA Model)

Variable	VIF	1/VIF
MOWN	2.38	0.4197
BOWN	1.38	0.7231
GOWN	2.75	0.3641
IOWN	2.68	0.3735
BS	1.41	0.7088
BI	1.44	0.6935
BD	1.21	0.8233
CD	1.25	0.8023
SIZE	1.69	0.5932
LEV	1.38	0.7252
LIQ	1.74	0.5736
AGE	1.39	0.7207
TANG	1.86	0.539
Mean VIF	1.85	

Table 5.6: The VIF Values (ROE Model)

Variable	VIF	1/VIF
MOWN	2.38	0.4197
BOWN	1.38	0.7231
GOWN	2.75	0.3641
IOWN	2.68	0.3735
BS	1.41	0.7088
BI	1.44	0.6935
BD	1.21	0.8233
CD	1.25	0.8023
SIZE	1.69	0.5932
LEV	1.38	0.7252
LIQ	1.74	0.5736
AGE	1.39	0.7207
TANG	1.86	0.539
Mean VIF	1.85	

Table 5.7: The VIF Values (Tobin's Qa Model)

Variable	VIF	1/VIF
MOWN	2.38	0.4197
BOWN	1.38	0.7231
GOWN	2.75	0.3641
IOWN	2.68	0.3735
BS	1.41	0.7088
BI	1.44	0.6935
BD	1.21	0.8233
CD	1.25	0.8023
SIZE	1.69	0.5932
LEV	1.38	0.7252
LIQ	1.74	0.5736
AGE	1.39	0.7207
TANG	1.86	0.539
Mean VIF	1.85	

Table 5.8: The VIF Values (Tobin's Qb Model)[7]

Variable	VIF	1/VIF
MOWN	2.38	0.4197
BOWN	1.38	0.7231
GOWN	2.75	0.3641
IOWN	2.68	0.3735
BS	1.41	0.7088
BI	1.44	0.6935
BD	1.21	0.8233
CD	1.25	0.8023
SIZE	1.69	0.5932
LEV	1.38	0.7252
LIQ	1.74	0.5736
AGE	1.39	0.7207
TANG	1.86	0.539
Mean VIF	1.85	

VIF was tested and it does not exceed 3 which concluded that multicollinearity does not pose a problem and is not a serious concern in this thesis. Therefore, fixed and random effects are applied and their results are shown in the next part.

5.2.5 Panel Data Analysis Fixed and Random Effects

The panel data analysis (fixed and random effects) is used because of the repeated observations of the same companies over the period from 2008 to 2017 as it gives more flexibility and enables pooling and analysing individual time series across several firms

[7] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

simultaneously with more accuracy (Verbeek, 2012). This thesis used two types of panel data-analysis—the fixed effects and the random-effects models. The fixed-effects model intercepts vary over the firms, as shown in this thesis, but it still assumes that the coefficient slope is constant through firms. For example, an individual effect for firms is presented using dummy variables in this model (Gujarati, 2003; Wooldridge, 2010). The model may have too many cross-sectional units, explaining the need for dummy variables within its requirements. Furthermore, this model may be troubled with multicollinearity and an increase in the standard errors and thus decreasing the statistical power to test parameters. The random-effects model, an alternative approach to the fixed effects model, assume that the individual cross-sectional unit constant is a random representation from a larger population with a constant mean value (Gujarati, 2003). The random-effects' assumptions are as the fixed effects ones, moreover that the constant is independent of all explanatory variables (Wooldridge, 2010). The random-effects model is economical in degrees of freedom (Gujarati, 2003). To conclude whether a fixed- or a random-effects model is more appropriate, a Hausman test is performed to investigate if there is a correlation between constant independent variables. The difference between models can explain this. The fixed-effects model produces consistent results when constant and independent variables correlate, while the random-effects model produces inconsistent results.

According to Table 5.9, the fixed effects, the results show that there are significant relations between BOWN and BS with ROA and there are significant associations between GOWN, IOWN and BD with Tobin's Qa. Regarding the random effects, the results show significant relationships between BOWN with ROE and there are significant associations between MOWN, GOWN, and IOWN with Tobin's Qb. The fixed and random effects panel data models control the unobservable firm-specific characteristics that may affect the firm performance (Wooldridge, 2010). The Hausman test is employed to distinguish between the fixed effects and the random-effects model.

The null hypothesis is tested to find whether the estimated coefficients by random effects estimator are the same as the estimated coefficients by the fixed effects consistent estimator.

Based on the Hausman test, the random effects estimations are more appropriate than fixed effects estimations for ROE and Tobin's Qa. The results also indicate that fixed effects estimations are more appropriate than random effects estimations for ROA and Tobin's Qa. Table 5.9 reports the results and finds that the largest effect on FP is observed for GOWN, followed by BOWN, IOWN and BS, BD.

Table 5.9: Panel Data Analysis Fixed and Random Effects[8]

	ROA	ROE	Tobin's Qa	Tobin's Qb
	Fixed	Random	Fixed	Random
MOWN	-0.00111 *(-0.97)*	-0.001079 *(-0.40)*	0.0016 (*1.54)*	0.0020* (*1.84)*
BOWN	0.00163** (*2.46)*	0.0010** (*2.18)*	0.0011 (*0.45*)	0.00144 (*0.17)*
GOWN	0.00111 (*1.21)*	0.00125 (*1.47)*	0.002** (*2.14*)	0.0025*** (*2.63)*
IOWN	-0.00112 *(-1.15)*	-0.00124 *(-1.27)*	0.002** (*1.99)*	0.0018* (*1.76)*
BS	-0.0014* *(-1.65)*	-0.0023 *(-1.50)*	-0.013 *(-1.54)*	-0.0063 *(-0.73)*
BI	-0.0048 *(-0.40)*	0.015 (*0.70)*	-0.048 *(-0.41)*	-0.033 *(-0.27)*
BD	0.014 (*0.70)*	0.0038 (*0.11)*	0.34* (*1.75)*	0.31 (*1.54)*
CD	0.0023 (*0.51)*	0.012 (*1.46)*	0.046 (*1.05)*	0.023 (*0.51)*
SIZE	-0.012 *(-1.45)*	0.034*** (*3.64)*	-1.04*** *(-12.6)*	-0.59***(*-10.2)*
LEV	-0.030*** *(-2.59)*	-0.021 *(-1.02)*	-0.044 *(-0.38)*	0.96*** (*8.22)*
LIQ	0.0052*** (*2.77)*	0.0025 (*0.76)*	0.001 *(-0.034)*	0.0032 (*0.17)*
AGE	0.0055** (*2.00)*	0.00179* (*1.80)*	-0.077*** *(-2.92)*	0.0022 (*0.71)*
TANG	-0.030** *(-2.46)*	-0.081*** *(-4.14)*	-0.44*** *(-3.68)*	-0.30*** *(-2.63)*
Constant	-0.029 *(-0.25)*	-0.20** *(-2.30)*	13.3*** (*11.6)*	6.13*** (*11.2)*
N	992	992	992	992
Hausman	0.0147	0.58	0	0.1129

[8] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5.2.6 SGMM Estimation

The system generalised method of moments is used to address this endogeneity problem of the relationship between ownership structure, corporate governance and firm performance as also the data used in the thesis is linear dynamic panel-data requiring models including lags of the dependent variable. The four models in Table 5.10 investigate the impact corporate governance and ownership structure types on the firm performance of Egyptian listed companies, evidence from the application of the system generalized method of moments estimation. L. Performance presents the lagged value impact of firm performance on firm performance change. Findings in Table 5.10 illustrate that GOWN, BOWN, IOWN, and MOWN have a significant level at 1% and positive impact on ROA, ROE, Tobin's Qa and Tobin's Qb. The findings show that BS and CD have significant level at 1% and positive impact on a firm's performance measured by ROA, ROE, Tobin's Qa and Tobin's Qb.

Table 5.10: SGMM Main Results[9]

Variables	ROA	ROE	Tobin's Qa	Tobin's Qb
L. Performance	0.101*** (0.021)	0.0703*** (0.016)	0.1542*** (0.008)	0.1587*** (0.011)
MOWN	0.001*** (0.001)	0.0016*** (0.001)	0.0061*** (0.001)	0.0062*** (0.001)
BOWN	0.001*** (0.001)	0.0017*** (0.001)	0.0089*** (0.001)	0.0093*** (0.001)
GOWN	0.001*** (0.001)	0.0017*** (0.001)	0.0071*** (0.001)	0.0072*** (0.001)
IOWN	0.001*** (0.001)	0.0013*** (0.001)	0.0048*** (0.001)	0.0047*** (0.001)
BS	0.003*** (0.001)	0.0023*** (0.001)	0.0640*** (0.004)	0.0634*** (0.004)
BI	0.019*** (0.007)	0.0441*** (0.014)	-0.1527* (0.082)	-0.1384** (0.070)
BD	-0.050** (0.019)	-0.0471 (0.039)	0.2942** (0.131)	0.2738** (0.138)
CD	0.024*** (0.003)	0.0410*** (0.004)	0.1224*** (0.028)	0.1260*** (0.025)
SIZE	-0.044*** (0.006)	-0.0826*** (0.006)	-1.2791*** (0.043)	-1.2392*** (0.049)
LEV	-0.023*** (0.005)	0.0825*** (0.006)	0.2678*** (0.075)	1.2659*** (0.065)
LIQ	0.003** (0.001)	-0.0012 (0.002)	-0.0497*** (0.008)	-0.0477*** (0.008)
AGE	0.001*** (0.001)	0.0024*** (0.001)	0.0244*** (0.002)	0.0239*** (0.002)
TANG	-0.107*** (0.011)	-0.2343*** (0.015)	-1.5058*** (0.084)	-1.4944*** (0.082)
Constant	0.358*** (0.057)	0.7152*** (0.068)	11.0526*** (0.449)	10.6507*** (0.487)
Observations	890	890	890	890
Number of firms	100	100	100	100
AR(2)	0.728	0.178	0.013	0.012
J-test Hansen	1	1	1	1

Regarding BI, it demonstrates that BI has a significant level at 1% and positive impact on ROA and ROE and on the contrary, it has a significant level at 5% and negative impact on

[9] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Size = log of total assets in year t; Leverage = total debt deflated by total assets in year t; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided. * p < 0.10, ** p < 0.05, *** p < 0.01

Tobin's Qb and a significant level at 10% and negative impact on Tobin'sQa. The table also shows that BD has a significant level at 5% and positive impact on Tobin's Qa and Tobin's Qb and on the contrary, it has a significant level at 5% and negative impact on ROA and has insignificant impact on ROE. The controlling variables SIZE and TANG have significant and negative impact on ROA, ROE, Tobin's Qa and Tobin's Qb, while AGE has significant and positive impact on the four measurements. Regarding LEV, it has significant and positive impact on ROE, Tobin's Qa and Tobin's Qb and negative impact on ROA. Last control variable LIQ, it has significant and negative impact Tobin's Qa and Tobin's Qb, and positive impact on ROA while it is insignificant on ROE.

AR (2) and Hansen J-Statistic are used to test the SGMM validity. The null hypothesis for AR(2) test is that the error terms are not serially correlated at 5% (level 2). Accordingly, to accept the null hypothesis, higher p-value is required for the autocorrelation test (AR2) to examine the error terms to accept SGMM estimator (Arellano & Bond, 1991; Roodman, 2009). As shown in Table 5.10 the Hansen statistic results assure the moment conditions' validity in all the estimations at 1. Although AR (2) results for Tobin's Qa and Tobin's Qb have low p-value as compared by ROA and ROE which let the author to investigate it in depth.

Table 5.11: Ownership Structure Types and CG Variables Effect on ROA only

Variables	ROA								
L.ROA	0.361***	0.385***	0.344***	0.351***	0.423***	0.362***	0.382***	0.390***	0.101***
	(0.021)	(0.021)	(0.023)	(0.022)	(0.020)	(0.023)	(0.023)	(0.018)	(0.021)
MOWN	-0.001***								0.001***
	(0.001)								(7.90e-05)
BOWN		0.001***							0.001598***
		(0.001)							(8.42e-05)
GOWN			-0***						0.001459***
			(0.001)						(7.92e-05)
IOWN				0***					0.001374***
				(0.001)					(6.98e-05)
BS					0.003***				0.00269***
					(0.001)				(0.001453)
BI						0.024**			0.0192***
						(0.010)			(0.00660)
BD							0.038**		-0.0504**
							(0.014)		(0.0197)
CD								0.017***	0.0242***
								(0.003)	(0.00332)
LIQ	-0.006***	-0.004***	-0.004***	-0.006***	-0.003**	-0.008***	-0.005***	-0.003**	0.00341**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.00130)
SIZE	-0.028***	-0.032***	-0.022***	-0.040***	-0.004	-0.031***	-0.029***	-0.037***	-0.0444***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.008)	(0.008)	(0.00595)
LEV	0.012	0.011	0.007	0.004	-0.008	0.003	0.026**	0.029***	-0.0226***
	(0.010)	(0.010)	(0.009)	(0.009)	(0.010)	(0.009)	(0.012)	(0.010)	(0.00493)
AGE	-0.001	0.001	0.001***	-0.001	-0.001	0.001	-0.001	-0.001**	0.00133***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001209)
TANG	-0.075***	-0.080***	-0.056***	-0.076***	-0.052***	-0.065***	-0.087***	-0.098***	-0.107***
	(0.011)	(0.013)	(0.013)	(0.012)	(0.014)	(0.012)	(0.012)	(0.013)	(0.0105)
Constant	0.338***	0.343***	0.229***	0.432***	0.074	0.328***	0.340***	0.419***	0.358***
	(0.053)	(0.061)	(0.056)	(0.063)	(0.053)	(0.058)	(0.063)	(0.064)	(0.0565)
Observations	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100
AR(2)	0.308	0.279	0.265	0.248	0.244	0.241	0.265	0.304	0.728
J-test Hansen	0.137	0.137	0.164	0.473	0.180	0.143	0.379	0.273	1.000

Table 5.12: Ownership Structure Types and CG Variables Effect on ROE only

Variables	ROE								
L.ROE	-0.043**	0.436***	0.381***	-0.040**	0.415***	0.393***	0.404***	0.404***	0.0703***
	(0.020)	(0.017)	(0.028)	(0.018)	(0.019)	(0.018)	(0.021)	(0.016)	(0.0159)
MOWN	0.001***								0.0016***
	(0.001)								(0.0011)
BOWN		0***							0.0017***
		(0.001)							(0.0011)
GOWN			-0***						0.0017***
			(0.001)						(0.0011)
IOWN				-0***					0.0013***
				(0.001)					(0.0011)
BS					-0.002*				0.0023***
					(0.001)				(0.0017)
BI						0.043***			0.0441***
						(0.016)			(0.0143)
BD							0.060***		-0.0471
							(0.016)		(0.0389)
CD								0.035***	0.0410***
								(0.006)	(0.0044)
LIQ	-0.006*	0.003*	0.001	-0.004	0.005**	0.003	0.004**	0.002	-0.0012
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.0015)
SIZE	-0.171***	0.105***	0.081***	-0.185***	0.078***	0.078***	0.067***	0.030***	-0.0826***
	(0.026)	(0.015)	(0.015)	(0.010)	(0.012)	(0.013)	(0.011)	(0.011)	(0.0064)
LEV	0.107***	0.031***	0.039***	0.132***	0.047***	0.025***	0.052***	0.053***	0.0825***
	(0.019)	(0.012)	(0.012)	(0.013)	(0.010)	(0.009)	(0.010)	(0.009)	(0.0064)
AGE	0.004***	0.001***	0.002***	0.003***	0.001	0.001**	0.001	0.001	0.0024***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0012)
TANG	-0.258***	-0.099***	-0.113***	-0.254***	-0.132***	-0.126***	-0.125***	-0.163***	-0.2343***
	(0.032)	(0.015)	(0.016)	(0.026)	(0.015)	(0.014)	(0.016)	(0.016)	(0.0149)
Constant	1.601***	-0.890***	-0.662***	1.730***	-0.594***	-0.650***	-0.531***	-0.189*	0.7152***
	(0.243)	(0.140)	(0.137)	(0.101)	(0.111)	(0.117)	(0.100)	(0.104)	(0.0676)
Observations	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100
AR(2)	0.191	0.751	0.808	0.106	0.654	0.741	0.681	0.612	0.178
J-test Hansen	0.205	0.312	0.317	0.283	0.357	0.388	0.335	0.389	1.000

Table 5.13: Ownership Structure Types and CG Variables Effect on Tobin's Qa only

Variables	Tobin'sQa								
L. Tobin's Qa	0.242***	0.206***	0.196***	0.280***	0.267***	0.240***	0.273***	0.049***	0.1542***
	(0.022)	(0.018)	(0.022)	(0.021)	(0.019)	(0.022)	(0.019)	(0.018)	(0.0081)
MOWN	0.001***								0.0061***
	(0.001)								(0.0015)
BOWN		-0.003***							0.0089***
		(0.001)							(0.0018)
GOWN			0.001***						0.0071***
			(0.001)						(0.0015)
IOWN				0.002***					0.0048***
				(0.001)					(0.0015)
BS					0.049***				0.0640***
					(0.007)				(0.0044)
BI						0.213***			-0.1527*
						(0.077)			(0.0824)
BD							0.336***		0.2942**
							(0.095)		(0.1313)
CD								0.192***	0.1224***
								(0.042)	(0.0275)
LIQ	-0.074***	-0.049***	-0.068***	-0.063***	-0.046***	-0.075***	-0.064***	-0.051***	-0.0497***
	(0.010)	(0.011)	(0.010)	(0.009)	(0.010)	(0.010)	(0.010)	(0.011)	(0.0083)
SIZE	-1.059***	-1.224***	-1.462***	-1.041***	-0.951***	-1.193***	-1.276***	-1.916***	-1.2791***
	(0.040)	(0.063)	(0.098)	(0.048)	(0.071)	(0.069)	(0.063)	(0.093)	(0.0433)
LEV	0.067	0.049	0.083	-0.029	-0.030	-0.043	0.038	0.205***	0.2678***
	(0.070)	(0.070)	(0.061)	(0.063)	(0.067)	(0.063)	(0.073)	(0.070)	(0.0750)
AGE	0.007***	0.010***	0.013***	0.004**	0.007***	0.011***	0.011***	0.046***	0.0244***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.0019)
TANG	-0.701***	-0.679***	-0.798***	-0.645***	-0.516***	-0.650***	-0.648***	-1.401***	-1.5058***
	(0.082)	(0.083)	(0.118)	(0.093)	(0.118)	(0.110)	(0.087)	(0.125)	(0.0839)
Constant	0.001	0.001	13.996***	0.001	0.001	11.441***	12.109***	17.022***	11.0526***
	(0.001)	(0.001)	(0.844)	(0.001)	(0.001)	(0.530)	(0.502)	(0.701)	(0.4491)
Observations	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100
AR(2)	0.072	0.068	0.068	0.092	0.087	0.074	0.079	0.041	0.013
J-test Hansen	0.214	0.355	0.300	0.375	0.290	0.240	0.253	0.135	1.000

Table 5.14: Ownership Structure Types and CG Variables Effect on Tobin's Qb only[10]

Variables	Tobin's Qb								
L. Tobin's Qb	0.051***	0.238***	0.217***	0.286***	0.285***	0.261***	0.294***	0.041**	0.1587***
	(0.014)	(0.013)	(0.020)	(0.020)	(0.018)	(0.021)	(0.019)	(0.017)	(0.0106)
MOWN	0.003***								0.0062***
	(0.001)								(0.0016)
BOWN		-0.002**							0.0093***
		(0.001)							(0.0017)
GOWN			0.002***						0.0072***
			(0.001)						(0.0014)
IOWN				0.002***					0.0047***
				(0.001)					(0.0015)
BS					0.047***				0.0634***
					(0.007)				(0.0044)
BI						0.235***			-0.1384**
						(0.076)			(0.0696)
BD							0.338***		0.274**
							(0.088)		(0.1377)
CD								0.193***	0.126***
								(0.041)	(0.0250)
LIQ	-0.068***	-0.051***	-0.061***	-0.063***	-0.048***	-0.079***	-0.066***	-0.051***	-0.048***
	(0.010)	(0.007)	(0.010)	(0.009)	(0.011)	(0.010)	(0.011)	(0.010)	(0.0078)
SIZE	-1.922***	-1.040***	-1.290***	-0.954***	-0.891***	-1.044***	-1.155***	-1.921***	-1.239***
	(0.087)	(0.036)	(0.073)	(0.044)	(0.067)	(0.062)	(0.061)	(0.093)	(0.0486)
LEV	1.371***	1.161***	1.068***	1.040***	1.023***	0.988***	1.079***	1.205***	1.266***
	(0.095)	(0.051)	(0.059)	(0.057)	(0.061)	(0.059)	(0.067)	(0.068)	(0.0649)
AGE	0.045***	0.009***	0.014***	0.001	0.005**	0.007***	0.008***	0.046***	0.024***
	(0.004)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.0020)
TANG	-1.479***	-0.722***	-0.654***	-0.673***	-0.504***	-0.663***	-0.619***	-1.420***	-1.494***
	(0.093)	(0.089)	(0.099)	(0.092)	(0.109)	(0.101)	(0.079)	(0.124)	(0.0823)
Constant	0.001	9.943***	12.236***	0.001	8.556***	0.001	0.001	0.001	10.651***
	(0.001)	(0.296)	(0.577)	(0.001)	(0.554)	(0.001)	(0.001)	(0.001)	(0.4870)
Observations	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100
AR(2)	0.038	0.016	0.072	0.091	0.089	0.079	0.084	0.039	0.012
J-test Hansen	0.051	0.070	0.242	0.399	0.361	0.298	0.326	0.129	1.000

[10] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The previous tables, Table 5.11, Table 5.12, Table 5.13, Table 5.14, investigate each variable with each model separately at a time to test if the AR (2) results are improved.

Table 5.15: Comparison between AR (2) Results of the 4 Models[11]

		L.ROA	MOWN	BOWN	GOWN	IOWN	BS	BI	BD	CD
	Observations	890	890	890	890	890	890	890	890	890
	Number of firms	100	100	100	100	100	100	100	100	100
ROA	AR(2)	0.308	0.279	0.265	0.248	0.244	0.241	0.265	0.304	0.728
ROE	AR(2)	0.191	0.751	0.808	0.106	0.654	0.741	0.681	0.612	0.178
Tobin's Qa	AR(2)	0.072	0.068	0.068	0.092	0.087	0.074	0.079	0.041	0.013
Tobin's Qb	AR(2)	0.038	0.016	0.072	0.091	0.089	0.079	0.084	0.039	0.012

Table 5.15 shows a comparison between each variable with each model and finds that the AR (2) tests results have better and higher p-values for all the four firm performance models and accordingly assure the moment conditions' validity in all the estimations and the autocorrelation tests. Based on the validity and autocorrelation tests and SGMM results, the author decided to investigate the impact of the Revolution on the Egyptian firm performance as shown in Table 5.16.

[11] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

Table 5.16: Revolution Impact on the Relationship between Ownership Structure Types, CG and Firm Performance[12]

Variables	ROA	ROE	Tobin's Qa	Tobin's Qb
L. Performance	0.080*** (0.023)	0.381*** (0.019)	0.137*** (0.012)	0.141*** (0.012)
MOWN	0.001 *** (0.001)	-0.001 *** (0.001)	0.006*** (0.001)	0.006*** (0.001)
BOWN	0.001 *** (0.001)	0.001 (0.001)	0.007*** (0.001)	0.008*** (0.001)
GOWN	0.001 *** (0.001)	-0.001 (0.001)	0.007*** (0.001)	0.007*** (0.001)
IOWN	0.001 *** (0.001)	-0.001 (0.001)	0.004*** (0.001)	0.004*** (0.001)
BS	0.002*** (0.001)	-0.002*** (0.001)	0.055*** (0.004)	0.056*** (0.004)
BI	0.017** (0.007)	0.062*** (0.018)	-0.100 (0.091)	-0.075 (0.087)
BD	-0.030* (0.017)	0.005 (0.033)	0.438*** (0.122)	0.460*** (0.127)
CD	0.020*** (0.003)	0.032*** (0.004)	0.087*** (0.033)	0.093*** (0.034)
LIQ	0.004*** (0.001)	0.003* (0.002)	-0.058*** (0.008)	-0.059*** (0.008)
SIZE	-0.021*** (0.004)	0.054*** (0.011)	-1.080*** (0.036)	-1.067*** (0.040)
LEV	-0.031*** (0.004)	0.010 (0.016)	0.131** (0.060)	1.110*** (0.050)
AGE	0.001*** (0.001)	0.001*** (0.001)	0.024*** (0.002)	0.024*** (0.002)
TANG	-0.081*** (0.010)	-0.126*** (0.013)	-1.359*** (0.080)	-1.374*** (0.079)
Revolution	**-0.016*** (0.002)**	**-0.010*** (0.003)**	**-0.197*** (0.016)**	**-0.200*** (0.016)**
Constant	0.178*** (0.045)	-0.453*** (0.099)	9.520*** (0.412)	9.377*** (0.444)
Observations	890	890	890	890
Number of firms	100	100	100	100
AR(2)	0.720	0.655	0.014	0.013
J-test Hansen	1.000	1.000	1.000	1.000

[12] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

As discussed in previous chapters, the main contribution is about the impact of the Egyptian Revolution on ownership structure, corporate governance and firm performance. It is also important to examine and investigate its impact on the relationship between ownership structure with firm performance and on the relationship between corporate governance with firm performance. Revolution has negative impact on the Egyptian firms' performance when measured by ROA, ROE, Tobin's Qa and Tobin's Qb with significance level at 1%. This result motivated the author to compare between pre-revolution and post-revolution as Table 5.17 by creating a dummy variable where '1' represents post-revolution and '0' otherwise.

Table 5.17: Comparison between Pre-Revolution and Post-Revolution[13]

	Pre-Revolution (2008-2010)				Post-Revolution (2011-2017)			
Variables	ROA	ROE	Tobin's Qa	Tobin's Qb	ROA	ROE	Tobin's Qa	Tobin's Qb
L.Performance	-0.1645**	-0.1390**	0.0213	0.0263	-0.165***	-0.066***	0.7636***	0.7586***
	-0.077	-0.0549	-0.0856	-0.0821	-0.0252	-0.0223	-0.0279	-0.0251
MOWN	0.0014***	0.0028***	0.0105	0.0104	0.0014***	0.0011	0.0024	0.0017
	-0.0014	-0.0018	-0.0076	-0.0072	-0.0011	-0.0012	-0.0025	-0.0027
BOWN	0.0025**	0.0062***	0.0631***	0.0631***	0.0019***	0.0013	-0.0049**	-0.0017
	-0.001	-0.0016	-0.013	-0.013	-0.0011	-0.0013	-0.0021	-0.0023
GOWN	0.0012	-0.0019	0.0023	0.0021	0.0019***	0.0011***	0.0033	0.0032
	-0.0016	-0.0012	-0.0105	-0.0104	-0.0011	-0.0012	-0.0024	-0.0026
IOWN	0.0012	-0.0019	-0.0051	-0.0052	0.0012***	-0.0013**	-0.0048*	-0.0069**
	-0.0017	-0.001	-0.0084	-0.0087	0	-0.0011	-0.0027	-0.0031
BS	0.0107**	0.0131*	-0.0532	-0.0528	0.0043***	0.0019**	0.0684***	0.0711***
	-0.0045	-0.0074	-0.0579	-0.0573	-0.0016	-0.0018	-0.0143	-0.0146
BI	0.0393	0.0744	-0.3628	-0.3701	-0.0052	0.0296**	0.0756	0.1208
	-0.041	-0.0575	-0.5557	-0.5313	-0.011	-0.0128	-0.1521	-0.166
BD	-0.375***	-0.597***	0.7266	0.8018	0.0086	-0.066***	3.1123***	2.6999***
	-0.0963	-0.1587	-1.1865	-1.1846	-0.0111	-0.0239	-0.3379	-0.3376
CD	0.0241	-0.0357	-0.1424	-0.1538	0.0055	0.0433***	0.1415**	0.1514**
	-0.0186	-0.032	-0.3528	-0.3497	-0.0042	-0.0116	-0.0694	-0.0717
LIQ	0.0099***	0.0045	-0.0222	-0.0191	0.0011	-0.006***	-0.316***	-0.312***

[13] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

	-0.0031	-0.0059	-0.0456	-0.0448	-0.0016	-0.0022	-0.0321	-0.0312
SIZE	-0.0217	0.0154	-0.783***	-0.776***	-0.0024	-0.0094	-0.187**	-0.250***
	-0.0144	-0.028	-0.2046	-0.2041	-0.0055	-0.0132	-0.0846	-0.0789
LEV	-0.0576	0.0604	0.5442	1.5848**	-0.0095**	0.1069***	-0.265***	0.4583***
	-0.0402	-0.0596	-0.5865	-0.623	-0.0045	-0.0078	-0.0859	-0.0973
AGE	0.0019	0.0019	0.0295**	0.0307**	-0.0014	-0.002***	-0.011***	-0.013***
	-0.0016	-0.0013	-0.0127	-0.0126	-0.0012	-0.0013	-0.0022	-0.0023
TANG	-0.0565	-0.0515	0.5387	0.5928	-0.119***	-0.344***	-1.500***	-1.582***
	-0.0478	-0.0687	-0.605	-0.6047	-0.01	-0.0166	-0.114	-0.141
Constant	0.1084	-0.1937	6.9991***	6.8541***	0.0777	0.3094**	2.7639***	3.3315***
	-0.1281	-0.2579	-1.7316	-1.7083	-0.0603	-0.1342	-0.7601	-0.7584
Observations	198	198	198	198	592	592	592	592
No of firms	99	99	99	99	100	100	100	100
AR(2)					0.4	0.109	0.273	0.162
J-test Hansen	0.646	0.661	0.494	0.367	0.761	0.573	0.36	0.304

Table 5.17 shows a comparison between the sample before the revolution (198 observations) and after the revolution (592 observations), including the revolution effect in the SGMM analysis to show this effect. It signifies that the total variation in the performance of Egyptian firms is caused by their ownership structure and corporate governance variables after controlling for the effect of firm size, leverage, liquidity ratio, firm age, assets tangibility, industry and time effects, and taking into account the sample size and the number of independent variables. This shows that, before the Revolution, GOWN, IOWN, BI, and CD have no significant effect on firm performance. Following the Egyptian revolution, GOWN is found to be positively significant at 1% with ROA and ROE, while IOWN is positively significant at 1% with ROA, and negatively significant at 5% with ROE and Tobin's Qb and negatively significant at 10% with Tobin's Qa. Regarding the CD, this coefficient is positively significant at 1% with ROE and is positively significant at 5% with Tobin's Qb. Moving to BI, this coefficient is positively significant at 5% with ROE only. This table also

shows that some significant levels increased as follows. Pre-revolution BS has positive significant effect on firm performance when measured by ROA and ROE while BD has negative significant effect on firm performance when measured by ROA and ROE. Following the Egyptian revolution, BS has positive significant effect on firm performance when measured by the four models with 1% except ROE with 5%. BD has positive significant effect on firm performance when measured by Tobin's Qa and Tobin's Qb at 1% and negative effect when measured by ROE at 1%. It is shown that some significant levels decreased as follows. Pre-revolution BOWN has significant effect when measured by the four models and MOWN has significant effect when measured by ROA and ROE. Following the Egyptian revolution, MOWN is found to has only positive significant effect when measured by ROA only and BOWN has positive significant effect when measured by ROA and negative significant effect when measured by Tobin's Qa.

In conclusion, Table 5.17 and 5.18 show a number of differences between the pre- and post-revolution regressions. There was a significant relationship between BOWN and MOWN with FP before the revolution, which decreased after the event. After the revolution, new significant relationships appeared as GOWN, IOWN, BI, and CD. There was a significant relationship between BS and BD with FP before the revolution, which increased after the event.

Table 5.18: Conclusion of Pre-revolution and Post-revolution

Pre-Revolution		Post- Revolution	
Relationship	**Model and significant level**	**Relationship**	**Model and significant level**
Increased significant relationships			
There is significant relationship between BS and FP	ROA at 5% ROE at 10%	There is a significant positive relationship between BS and FP	ROA, Tobin's Qa and Tobin's Qb at 1% ROE at 5%
There is significant negative relationship between BD and FP	ROA and ROE at 1%	There is a significant relationship between BD and FP	Tobin's Qa and Tobin's Qb positive at 1% ROE negative at 1% and ROA disappeared
Decreased significant relationships			
There is a significant positive relationship between BOWN with FP	All models at 1%	There is a significant relationship between BOWN with FP	ROA positive at 1% Tobin's Qa negative at 5%
There is a significant positive relationship between MOWN with FP	ROA and ROE at 1%	There is a significant positive relationship between MOWN with FP	With ROA only at 1%
New significant relationships			
There is no significant relationship between GOWN with FP		There is a significant positive relationship between GOWN with FP	ROA and ROE at 1%
There is no significant relationship between IOWN and FP		There is a significant relationship between IOWN and FP	ROA positive at 1%, ROE and Tobin's Qb negative at 5% Tobin's Qa negative 10%
There is no significant relationship between BI and FP		There is a significant positive relationship between BI and FP	ROE at 5%
There is no significant relationship between CD and FP		There is a significant positive relationship between CD and FP	ROE at 1% Tobin’s Qa and Tobin's Qb at 5%

5.2.7 Principal Components Analysis

As explained previously PCA is used to lower the variables number which are linear combinations of the original response vectors. To apply this method, ownership structure types are grouped together into the variable OWN and corporate governance are grouped together into the variable GOVN. These groups are expected to contain highly collinear variables carrying most of the impact on firm performance. Table 5.19 provides results from principal components analysis (PCA) used to transform the proxy variables into a smaller number of factors.

Table 5.19: PCA Method (Governance, Ownership Structure and Performance)[14]

Variables	ROA			ROE			Tobin's Qa			Tobin's Qb		
L.Perfromance	-0.030**	-0.050***	-0.049***	-0.038*	-0.038*	-0.021	0.212***	0.245***	0.235***	0.246***	0.273***	0.252***
	(0.015)	(0.018)	(0.016)	(0.022)	(0.022)	(0.017)	(0.018)	(0.023)	(0.016)	(0.020)	(0.021)	(0.015)
OWN	0.003**		0.003**	0.006*		0.005***	-0.035***		-0.014*	-0.020*		-0.022**
	(0.001)		(0.001)	(0.003)		(0.002)	(0.010)		(0.008)	(0.010)		(0.008)
GOVN		0.007***	0.007***		0.010**	0.012***		0.101***	0.109***		0.104***	0.118***
		(0.002)	(0.001)		(0.004)	(0.004)		(0.013)	(0.011)		(0.012)	(0.011)
LIQ	-0.001	0.001	0.001	-0.008**	-0.005*	-0.004	-0.049***	-0.060***	-0.067***	-0.071***	-0.062***	-0.067***
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.003)	(0.009)	(0.011)	(0.008)	(0.009)	(0.010)	(0.008)
SIZE	-0.108***	-0.076***	-0.069***	-0.227***	-0.185***	-0.172***	-1.160***	-1.104***	-1.078***	-1.139***	-1.004***	-1.031***
	(0.008)	(0.008)	(0.007)	(0.023)	(0.021)	(0.012)	(0.036)	(0.071)	(0.040)	(0.047)	(0.064)	(0.034)
LEV	0.022**	-0.002	-0.005	0.122***	0.096***	0.096***	0.225***	-0.082	-0.030	1.137***	0.947***	0.988***

[14] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

	(0.009)	(0.008)	(0.007)	(0.019)	(0.016)	(0.014)	(0.055)	(0.065)	(0.048)	(0.062)	(0.062)	(0.049)
AGE	0.002***	0.002***	0.002***	0.004***	0.004***	0.005***	0.010***	0.010***	0.007***	0.006***	0.006***	0.004**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
TANG	-0.149***	-0.115***	-0.118***	-0.255***	-0.241***	-0.229***	-0.749***	-0.612***	-0.766***	-0.715***	-0.567***	-0.762***
	(0.014)	(0.016)	(0.013)	(0.035)	(0.032)	(0.028)	(0.086)	(0.110)	(0.071)	(0.081)	(0.102)	(0.066)
Constant	1.021***	0.722***	0.001	2.098***	0.001	1.593***	11.045***	10.700***	0.001	11.239***	9.841***	10.131***
	(0.071)	(0.071)	(0.001)	(0.192)	(0.001)	(0.110)	(0.326)	(0.545)	(0.001)	(0.411)	(0.515)	(0.290)
Observations	890	890	890	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100	100	100	100
AR(2)	0.998	0.936	0.847	0.189	0.144	0.194	0.014	0.066	0.067	0.080	0.072	0.070
J-test Hansen	0.178	0.145	0.265	0.141	0.180	0.188	0.079	0.163	0.263	0.339	0.240	0.278

Table 5.19 shows all ownership structure types grouped into OWN and all corporate governance variables grouped into GOVN. It concludes the impact of GOVN on firm performance resulting a positive impact on firm performance when measured by ROA and ROE while negative impact when measured by Tobin's Qa and Tobin's Qb. The same analysis is done but with corporate governance GOVN indicating that it has positive significant impact on firm performance when measured by all models. These results need more analyses with adding the Revolution impact to indicate if it changes these findings or not.

Table 5.20: Composite Variables (OWN and GOVN) with Revolution Impact on FP[15]

Variables	ROA	ROE	Tobin's Qa	Tobin's Qb
L.Perfromance	0.382***	0.375***	0.255***	0.272***
	(0.019)	(0.012)	(0.014)	(0.014)
OWN	0.005***	0.009***	0.026***	0.036***
	(0.001)	(0.001)	(0.009)	(0.012)
GOVN	0.001	0.002	0.039***	0.033***
	(0.001)	(0.002)	(0.008)	(0.009)
Revolution	0.016***	-0.014***	0.280***	0.301***
	(0.003)	(0.002)	(0.037)	(0.045)
Revolution X OWN	-0.003**	-0.011***	-0.079***	-0.098***
	(0.001)	(0.002)	(0.011)	(0.014)
Revolution X GOVN	0.005***	-0.005**	0.097***	0.087***
	(0.001)	(0.002)	(0.015)	(0.014)
LIQ	-0.001	-0.002	-0.066***	-0.062***
	(0.001)	(0.002)	(0.007)	(0.007)
SIZE	-0.001	0.047***	-0.938***	-0.874***
	(0.004)	(0.009)	(0.044)	(0.055)
LEV	-0.026***	0.026***	-0.104**	0.892***
	(0.007)	(0.008)	(0.050)	(0.039)
AGE	0.001***	0.001**	0.007***	0.004**
	(0.001)	(0.001)	(0.002)	(0.002)
TANG	-0.061***	-0.122***	-0.576***	-0.483***
	(0.006)	(0.011)	(0.072)	(0.084)
Constant	0.001	-0.317***	8.688***	0.001
	(0.001)	(0.086)	(0.468)	(0.001)
Observations	890	890	890	890
Number of firms	100	100	100	100
AR(2)	0.251	0.707	0.072	0.075
J-test Hansen	0.889	0.833	0.955	0.963

[15] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

Table 5.20 shows that ownership structure types have a positive significant impact on firm performance at 1% when measured with all models. This result is changed totally when the Revolution is examined together with OWN which explains that it has a negative impact on ownership and accordingly negative impact on firm performance. The same analysis is done but with corporate governance indicating that it has a positive significant impact on firm performance but when measured by Tobin's Qa, Tobin's Qb and ROA. After adding the Revolution effect, the result changed to has a positive significant impact on firm performance at 1% when measured by all models except ROE, which shows a negative impact at 5%. This shows that Revolution has a positive indirect effect on firm performance through corporate governance. These results can be explained as the government concentrated on the corporate governance factor more than the ownership structure after the revolution to improve the firm performance of the Egyptian companies. Accordingly, it is interesting to investigate if all the ownership types have a negative effect on the firm performance or there is one or more with a different result. So, table 5.21 shows each ownership structure type impact individually on firm performance by creating a dummy variable for each type where 1 represents one type and 0 for the others.

Table 5.21: Ownership Structure Types with each Firm Performance Measurement Model[16]

Variables	ROA				ROE				Tobin's Qa				Tobin's Qb			
L. Perf.	0.103***	0.093***	0.055**	0.090***	0.087***	0.053***	0.049**	0.066***	0.187***	0.160***	0.176***	0.274***	0.190***	0.158***	0.179***	0.17***
	(0.028)	(0.021)	(0.025)	(0.024)	(0.019)	(0.016)	(0.021)	(0.016)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.011)	(0.011)
MOWN	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.004***	0.006***	0.006***	0.005***	0.004***	0.006***	0.006***	0.01***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
BOWN	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.006***	0.008***	0.009***	0.007***	0.007***	0.008***	0.010***	0.01***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
GOWN	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.005***	0.007***	0.006***	0.006***	0.005***	0.007***	0.006***	0.01***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
IOWN	0.001***	0.001***	0.001***	0.001***	0.001**	0.001***	0.001	0.001***	0.004***	0.005***	0.005***	0.007***	0.005***	0.005***	0.005***	0.01***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
BS	0.002***	0.003***	0.003***	0.003***	0.003***	0.003***	0.001	0.003***	0.061***	0.061***	0.056***	0.035***	0.060***	0.062***	0.056***	0.07***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)

[16] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

BI	0.024**	0.007	0.036***	0.027**	0.043**	0.028*	0.082***	0.044***	-0.009	-0.091	-0.013	0.360***	0.005	-0.124*	0.006	-0.139*
	(0.010)	(0.007)	(0.011)	(0.011)	(0.017)	(0.016)	(0.019)	(0.014)	(0.085)	(0.073)	(0.072)	(0.084)	(0.086)	(0.069)	(0.069)	(0.076)
BD	-0.05***	-0.029*	-0.038*	-0.048**	-0.089**	-0.079*	-0.13***	-0.068	0.314**	0.409***	0.324**	0.271***	0.357**	0.306**	0.268*	0.302**
	(0.017)	(0.015)	(0.022)	(0.022)	(0.034)	(0.043)	(0.040)	(0.044)	(0.141)	(0.147)	(0.161)	(0.102)	(0.150)	(0.139)	(0.147)	(0.139)
CD	0.023***	0.026***	0.023***	0.023***	0.046***	0.042***	0.037***	0.042***	0.118***	0.123***	0.121***	0.071**	0.120***	0.126***	0.099***	0.138***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.006)	(0.031)	(0.025)	(0.042)	(0.030)	(0.030)	(0.024)	(0.033)	(0.028)
LIQ	0.004***	0.004***	0.002	0.005***	0.002	-0.001	0.001	0.002	-0.07***	-0.05***	-0.05***	-0.05***	-0.065***	-0.045***	-0.054***	-0.054***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.008)	(0.009)	(0.009)	(0.006)	(0.007)	(0.008)	(0.008)	(0.009)
SIZE	-0.04***	-0.03***	-0.05***	-0.04***	-0.07***	-0.06***	-0.09***	-0.08***	-1.31***	-1.26***	-1.30***	-0.89***	-1.288***	-1.243***	-1.229***	-1.228***
	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)	(0.008)	(0.007)	(0.009)	(0.043)	(0.046)	(0.039)	(0.046)	(0.050)	(0.049)	(0.040)	(0.048)
LEV	-0.02***	-0.03***	-0.014*	-0.02***	0.079***	0.087***	0.100***	0.086***	0.303***	0.245***	0.373***	-0.066*	1.278***	1.255***	1.375***	1.26***
	(0.006)	(0.005)	(0.008)	(0.006)	(0.012)	(0.009)	(0.007)	(0.016)	(0.077)	(0.076)	(0.066)	(0.035)	(0.065)	(0.069)	(0.064)	(0.067)
AGE	0.001***	0.001***	0.001	0.001***	0.003***	0.002***	0.001**	0.002***	0.021***	0.025***	0.019***	0.009***	0.021***	0.025***	0.019***	0.02***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
TANG	-0.11***	-0.09***	-0.10***	-0.11***	-0.21***	-0.22***	-0.22***	-0.21***	-1.50***	-1.45***	-1.37***	-0.84***	-1.477***	-1.482***	-1.386***	-1.514***
	(0.010)	(0.011)	(0.010)	(0.012)	(0.018)	(0.019)	(0.025)	(0.018)	(0.089)	(0.095)	(0.103)	(0.073)	(0.087)	(0.083)	(0.101)	(0.091)
IOWN	-0.021**				0.049***				-0.424***				-0.453***			
	(0.010)				(0.013)				(0.128)				(0.146)			
BOWN		-0.14***				-0.24***				0.547				0.545		

		(0.035)				(0.059)				(0.462)				(0.485)		
GOWN			0.096***				0.11***				0.540***				0.516***	
			(0.017)				(0.033)				(0.141)				(0.130)	
MOWN				-0.029**				-0.09***				0.256*				0.099
				(0.013)				(0.018)				(0.148)				(0.184)
Constant	0.356***	0.252***	0.415***	0.342***	0.536***	0.555***	0.754***	0.661***	11.722***	10.811***	11.158***	7.686***	11.468***	10.617***	10.578***	10.552***
	(0.059)	(0.051)	(0.062)	(0.055)	(0.067)	(0.078)	(0.071)	(0.084)	(0.424)	(0.470)	(0.404)	(0.429)	(0.505)	(0.496)	(0.417)	(0.481)
Obs.	890	890	890	890	890	890	890	890	890	890	890	890	890	890	890	890
No. of firms	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
AR(2)	0.731	0.764	0.664	0.777	0.183	0.174	0.175	0.173	0.014	0.013	0.018	0.017	0.012	0.012	0.015	0.012
J-test Hansen	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

It is important to examine each type of ownership structure effect on firm performance with each method separately to conclude which type has the most significant impact. As shown in Table 5.21, blockholder ownership has the least impact on firm performance while the most one with the highest positive significant impact is the government ownership structure.

The next part introduces industry dummy variable. Based on the number of observations, Consumer Goods Industry (No. 4) has the largest number as compared with the other industries. It motivated the author to examine if it has an impact on Egyptian firm performance.

Table 5.22: Industry Impact on Ownership Structure Types, CG and Firm Performance[17]

Variables	ROA	ROE	Tobin's Qa	Tobin's Qb
L.Perfromance	0.080*** (0.026)	0.062*** (0.022)	0.187*** (0.023)	0.178*** (0.021)
MOWN	0.001*** (0.001)	0.001*** (0.001)	0.007*** (0.001)	0.006*** (0.001)
BOWN	0.001*** (0.001)	0.001 (0.001)	0.011*** (0.002)	0.011*** (0.002)
GOWN	0.001*** (0.001)	0.001*** (0.001)	0.007*** (0.001)	0.007*** (0.001)
IOWN	0.001*** (0.001)	0.001*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
BS	0.003*** (0.001)	0.001 (0.001)	0.072*** (0.005)	0.075*** (0.005)
BI	0.016** (0.008)	0.058*** (0.017)	-0.167** (0.084)	-0.293* (0.171)
BD	-0.009 (0.021)	-0.050 (0.039)	-0.099 (0.192)	-0.154 (0.181)
CD	0.023*** (0.003)	0.042*** (0.006)	0.071* (0.041)	0.071 (0.045)
LIQ	0.003*** (0.001)	-0.001 (0.002)	-0.052*** (0.009)	-0.053*** (0.010)
SIZE	-0.050*** (0.006)	-0.082*** (0.009)	-1.312*** (0.077)	-1.261*** (0.076)
LEV	-0.012** (0.006)	0.097*** (0.015)	0.012 (0.083)	0.935*** (0.088)
AGE	0.001*** (0.001)	0.003*** (0.001)	0.019*** (0.005)	0.021*** (0.005)
TANG	-0.108*** (0.012)	-0.213*** (0.016)	-1.424*** (0.113)	-1.436*** (0.121)
Industry	0.050** (0.019)	0.160*** (0.034)	-1.236*** (0.186)	-1.379*** (0.196)
Constant	0.403*** (0.059)	0.659*** (0.082)	12.106*** (0.734)	0.001 (0.001)
Observations	890	890	890	890
Number of firms	100	100	100	100
AR(2)	0.710	0.174	0.073	0.064
J-test Hansen	1.000	1.000	1.000	1.000

[17] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

Industry dummy variables are used to distinguish among the sectors, Consumer Goods Industry is assigned the value of one (1) other industries are assigned the value of zero (0). The result in Table 5.22 revealed that there is a significant negative relationship between the industry dummy when measured by Tobin's Qa and Tobin's Qb with corporate governance practices and ownership structure types. Contradict to this result there is a significant positive relationship between the industry dummy when measured by ROA and ROE. This implies that consumer goods firms contribute more to firm performance than other industries when ignoring the market effect.

5.2.8 Comparison between the Results of OLS and SGMM Regressions

This thesis uses OLS and SGMM regressions so it is important to compare between them as shown in Table 5.23 This Table is very important as it presents the difference between running the regression without controlling the problem of endogeneity (OLS) and after controlling the problem of endogeneity (SGMM). As shown that SGMM estimator produces different results changing all the non-significant relationships to significant ones except BD and LIQ continue to be non-significant when measured by ROE. Therefore, the SGMM shows the highest significant results as compared to panel data and OLS analysis due to the endogeneity problem.

Table 5.23: Comparison between the Results of OLS and SGMM Regressions[18]

Variables	Panel Data				OLS				SGMM			
	ROA	ROE	Tobin's Qa	Tobin's Qb	ROA	ROE	Tobin's Qa	Tobin's Qb	ROA	ROE	Tobin's Qa	Tobin's Qb
	Fixed	Random	Fixed	Random								
MOWN	Non-sig.	Non-sig.	Non-sig.	Sig	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
BOWN	Sig	Sig	Non-sig.	Non-sig.	Sig.	Sig.	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.
GOWN	Non-sig.	Non-sig.	Sig	Sig	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
IOWN	Non-sig.	Non-sig.	Sig	Sig	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
BS	Sig	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
BI	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
BD	Non-sig.	Non-sig.	Sig	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Sig.	Non-sig.	Sig.	Sig.
CD	Non-sig.	Non-sig.	Non-sig.	Non-sig.	Sig.	Sig.	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.
SIZE	Non-sig.	Sig	Sig	Sig	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.

[18] Sample description and variable definitions: The total sample = 992 firm-year observations over 2008-2017 including 14 different industries. The sample contains firms' performance measurements: Tobin's Q; ROA = Return on Assets in year t; ROE = Return on Equity in year t; Independent variables: ownership structure types including MOWN refers to managerial ownership, BOWN refers to blockholder ownership, GOWN refers to government ownership, IOWN refers to institutional ownership; Corporate governance variables include BS refers to board size, BI refers to board independence, BD refers to board diversity, and CD refers to CEO duality; Control variables: Firm Size = log of TA; Leverage = total debt/total assets; Tangible assets = fixed assets divided by total assets; Liquidity ratio = deflated current assets by current liabilities; Firm Age = years since foundation. Full definitions for these variables are provided.

LEV	Sig	Non-sig.	Non-sig.	Sig	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
LIQ	Sig	Non-sig.	Non-sig.	Non-sig.	Sig.	Non-sig.	Non-sig.	Non-sig.	Sig.	Non-sig.	Sig.	Sig.
AGE	Sig	Sig	Sig	Non-sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.	Sig.
TANG	Sig	Sig	Sig	Sig	Sig.	Sig.	Non-sig.	Non-sig.	Sig.	Sig.	Sig.	Sig.

As a conclusion, the findings of SGMM estimator and PCA method can be classified into 2 groups. The first group is concerned with the findings without adding the Revolution effect and as it is shown in the previous section all ownership structure types have a positive impact on firm performance by using both analysis methods. The PCA gives a more specific finding that this result is changed when all ownership structure types are combined into one variable and measured with Tobin's Q it is changed to be negative. This can be explained by the market effect on firm performance. Regarding the corporate governance variables, have a positive effect on firm performance by using both analysis methods but BI has a positive impact when measured with accounting measurement and negative with market ones and BD vice versa which required further investigations. All these relationships can be found in previous studies but not with using the PCA method and compared with SGMM and not the same results. Accordingly, it adds to the thesis contribution by investigating also the Revolution impact and compare the results of both methods. By examining the Revolution impact on firm performance, it is found that it has a negative effect on it. Therefore, the second group is concerned with the findings by adding the Revolution effect. It has a negative impact on the relationship between ownership structure and firm performance by using the PCA method while the SGMM method indicated that BOWN and IOWN have an only negative effect when Tobin's Q is used. SGMM and PCA supported each other that the Revolution has a positive effect on the relationship between corporate governance and firm performance which is explained that the companies are more concerned with the CG practices to reach better performance and recover from the Revolution. These findings will be discussed in the next chapter in details.

Chapter 6: Discussion and Conclusions

6.1 Introduction

This thesis examines and describes the relationship between types of ownership structure, corporate governance (CG) variables and corporate performance. As mentioned above, this relationship represents a significant debate in the corporate-finance literature, which started with the study by Berle and Means (1932) and explains the importance of this thesis. This chapter presents the thesis conclusions and discussion, providing further detail on the study of ownership types and CG variables at the corporation level in Egypt – an emerging market – before and after the Egyptian Revolution. This approach identifies the thesis as work that fills the existing gap in the literature regarding the effect of the Revolution on Egyptian firm performance. This thesis provides new evidence regarding the impact on firm performance of different ownership-structure types and a select number of corporate-governance variables.

The sample included a selection of conglomerate firms listed on the Egyptian stock exchange with available longitudinal panel data from 2008 to 2017. Using multiple regression analysis, fixed- and random-effects models, Newey and West (1987) standard errors pooled regression analyses for the sample of these listed firms to control heterogeneity among the cross-sections and to reduce the multicollinearity problem with the explanatory variables (Mira, 2005). The data cover 101 (992 observations) of Egypt's most active listed companies. The research deals with objective reality and follows hypothetico-deductive logic to test the logical framework and analyse the hypotheses. The thesis applies the positivist paradigm, a deductive approach, and quantitative techniques. It also uses a linear regression model and STATA software to run the regression through the SGMM and PCA. Accordingly, the empirical testing of this thesis' hypotheses depended on a review of the regression assumptions: normality of residuals, heteroscedasticity, no multicollinearity of independent variables and autocorrelation effects.

6.2 Summary of Research Objectives and Hypotheses

The primary objective of this thesis is to examine the Egyptian Revolution's effect on firm performance concerning the relationships among ownership-structure types, corporate-governance variables and performance. The researcher primarily tests the extent to which firm performance changed after the Revolution. The thesis also aims to investigate the ownership-structure types – namely, block ownership, government/state ownership, institutional ownership and managerial/director ownership – and to investigate corporate governance variables, such as board size, CEO duality, board independence, and board diversity after adding the Revolution impact. By referring to the financial literature, the thesis also aims to determine the variables that have changed by comparing pre- and post-revolution. Based on theory and consistent with previous studies discussed in earlier chapters, this thesis investigates whether high firm performance is associated with the Egyptian Revolution, managerial ownership, board size, CEO duality, high levels of block ownership, state ownership, institutional ownership, board independence and board gender diversity.

6.3 Summary of Research Philosophy and Methodology

Regarding research philosophy, the researcher views this thesis as a set of variables influencing firm performance within the positivist paradigm, dealing with objectivity and reality, with its roots in regulation sociology (Burrell and Morgan, 1979). This thesis also uses a deductive approach and quantitative technique. The thesis sample covers 101 listed Egyptian firms with 992 observations from 2008 to 2017. The Egyptian Stock Exchange (EGX) was the source for collecting all necessary variables observations. Following the literature review, the researcher excluded financial and utility firms from the sample (Peasnell et al., 2005; Francis et al., 2005). There are fourteen industries identified, four industries were excluded – i.e. Banks and Financial Services, Insurance and Utilities – and the remainder yielded a total of 992 firm-year observations. This thesis applies system generalised method of moments to address the endogeneity problem and to deal with models including lags of the dependent variable. The dynamic SGMM panel model is the chosen model over the OLS and static panel estimates due to the following reasons. First of all, OLS

models can cause dynamic panel bias by omitting dynamics which can be explained as mis-specified models due to excluding the right-hand-side variables history (Badi, 2008; Christopher & Christopher, 2006; Stephen, 2002). Second the SGMM, as a dynamic panel model, addresses much easier the problem of potential endogeneity than in OLS. The lagged and differenced variables, which are regression variables, can be potentially used as valid instruments which are not correlated with the error term (Roodman, 2009). Last advantage of SGMM is the identification of both short-run and long-run impact of variables used in this thesis (Adnan, Pugh, & Adnett, 2009; Badi, 2008). The principal component analysis is also applied for more advanced analysis and to add to the previous literature.

6.4 Summary of Empirical Results and Contribution Discussion

Following is a summary and discussion of the main findings resulting from the data analysis and based on the references in previous studies. It indicates the impact of the Egyptian Revolution (excluding any political consequences), ownership structure and corporate governance on firm performance in emerging markets, by analysing dataset from 2008 to 2017 to explain the contributions in more details.

The econometrics methods - SGMM and PCA - are used to empirically test the thesis' hypotheses. In its developed model, the thesis examines alternative firm-performance measures as dependent variables (e.g. ROA, ROE, Tobin's Qa and Tobin's Qb), while ownership-structure variables (e.g. MOWN, BOWN, GOWN and IOWN) and corporate-governance variables (BS, BI, BD and CD), as well as several control variables (SIZE, LEV, LIQ, AGE, TANG), are also included in the prescribed model. SGMM examines each variable individually with the different firm performance measurements together and with each measurement separately to be able to further enrich the results. While PCA examines all the ownership structure variables combined in OWN and all the corporate governance variables in GONV. The discussion of findings will also show whether they support the hypotheses or not. A review of the findings after the Revolution compares them with their counterparts before the Revolution. A discussion of all findings is categorized into three parts, first one about Pre-Revolution, then Revolution impact, and finally Post-Revolution ones.

First of all, Pre-Revolution or without adding the Revolution effect, the results are as expected in hypothesis $1a_1$, hypothesis $1b_1$, hypothesis $1c_1$, hypothesis $1d_1$ supporting the positive effect of the different ownership structure types on firm performance when using the SGMM estimator. PCA was incorporated into the analysis to compare these results and add to the literature and contribute to the previous results. Principal Component Analysis finds that the accounting performance (ROA and ROE) are the ones resulting this positive impact as they only focus on the current profitability. However, market performance (Tobin's Q) shows that OWN has a negative effect on firm performance and therefore the companies neglect and do not focus on future expectations and market conditions. This has to be changed and improved to cope with future plans and utilise the youth to investigate the market (Resource-Dependence Theory). Corporate governance variables effect on firm performance is also examined by using both methods. They supported a positive effect on the Egyptian firm performance except for some minor differences. Board independence has negative effect when measured by Tobin's Q using SGMM which explains that they concentrate only on the internal management information (Resource-Dependence Theory) without taking into consideration any outside advises to adapt with the market changes. It additionally can be considered as a dishonestly by being objective and ignoring the outsiders which that has to be improved (Resource-Dependence Theory). So SGMM is important to find out why BI and board diversity have different effect than the other corporate governance variables. Board diversity's negative effect is explained that it is only a present and internal effect which can be a reason of intergroup conflicts (Agency theory) or that women are more risk averse and concentrate only on current plans. This negative effect should be enhanced by the new corporate governance code and will be reviewed after the Revolution period. So overall, both ownership structure and corporate governance have positive effect on firm performance before the Revolution except the explained ones. The findings support the thesis hypotheses as they are built on only studies without having the Revolution effect covered through them.

As per the best of the author's knowledge, it is the first thesis to show the Revolution impact and to analyse these variables all together using PCA method and comparing it with SGMM estimators and verifying the findings with different tests. By grouping the variables and

having new ones, OWN for ownership structure types and GOVN for corporate governance variables, the results changed slightly than analysed with SGMM.

The second part of the findings is about one of the main contributions of this thesis which is the Revolution impact which is categorized into three different groups. First one is about the Revolution impact on performance, which is a major change and a connection topic between Pre-Revolution and Post-Revolution. Revolution impact is analysed separately with firm performance resulting a negative effect on the Egyptian firm performance. Second one is the Revolution impact on the relationship between ownership structure types with firm performance. It has a negative impact on the ownership structure types combined (PCA) or individually (SGMM) which indicates that the companies' owners were not concerned with the structure of the firms after the Revolution and focused on the internal corporate governance mechanism. This is shown in the third part about the Revolution impact on the relationship between corporate governance with firm performance. Post-Revolution impact on this relationship is positive explaining that voluntary corporate governance setting and a comply or explain corporate governance code together has a better impact on the corporate governance practices within the Egyptian companies.

The Post-Revolution findings can be explained through Egyptian complaints and explanations that drove the Egyptian Revolution in 2011. One of these complaints was an economic one (Ali, 2012) that included inequality, corruption and authoritarianism (Resource-Dependence Theory) (Korotayev & Zinkina, 2011). The Egyptian Revolution put an end to the thirty-year regime of President Mubarak (Azzam et al., 2013). A previous Egyptian study (Abdel Shahid 2003) indicated that economic or political factors other than ownership-structure types might have affected firms' performance. What follows is the author's knowledge and personal opinion about what happened after the Revolution and its effect on Egyptian firms' performance.

The findings of the impact on the relationship between ownership structure types with firm performance is a result of concentrating on only the internal mechanisms (Agency theory) and ignoring the ownership structure. While, the relationship between corporate governance with firm performance indicates that the Revolution affected CEO duality, board size, board diversity and board independence. CEO duality can help to increase firm performance through single leadership that reduces conflicts of interest (Agency theory). This supported

Egyptian firm performance by enhancing the response of the firms to this external event. Commands are unified and clear, and companies have better communication supporting a faster decision-making process. After the Revolution, companies needed to apply resources, capabilities and greater information processing to their response to external complexity (Resource-Dependence Theory), all of which can occur with a large and efficient board. This explains how board size positively affects firm performance. It also helps to have experts who are useful in meeting discussions and for greater monitoring, with specialised directions for better communication. Females can increase productivity and have different viewpoints, backgrounds and qualifications. Women also demonstrate commitment, are sensitive market observers with a wider range of views, have better attendance records and increase the firm's innovative power. Although, it confirms the fact that female roles in Egyptian companies became one of the most important topics discussed after the Egyptian Revolution – specifically, how it should be highlighted to improve firm performance. Board independence increases transparency, effectiveness and objectivity, facilitates information flow, reduces agency problems and enhances board decision-making because increasing outsider participation decreases the concentration of decision management. All these characteristics were needed after the Revolution to overcome its negative effects on firm performance.

As a conclusion, this thesis adds to the current literature as follows. It used both theories (agency theory and resource-dependence theory) to theoretically and practically examine the Revolution impact on corporate governance mechanism, ownership structure and firm performance. It comprises how the Egyptian firm changed before and after the Revolution that has not been analysed before as well as its negative impact on the relationship between ownership structure with firm performance and its positive impact on the relationship between corporate governance with firm performance by using SGMM and PCA.

6.5 Thesis Implications

These findings could help investors, analysts, regulators, policymakers and managers who are interested in firm performance and would like to understand and to overcome the economic consequences of the Egyptian Revolution of 2011. This thesis reveals findings that highlight the relationship between firm ownership-structure types and

the level of firm performance. The findings related to CG show the importance of the corporate governance practices and how it should potentially interest the Ministry of Investment and its concern with improving firm performance in Egypt. The stock exchange or the law should require listed companies to comply with Egyptian corporate-governance rules or explain why they do not comply. Companies' annual reports should be declaratory and relatively to companies' data.

The needs of shareholders and other stakeholders for information on the firms in which they invest might prompt providing corporations with more tools to enable enhanced firm disclosures regarding corporate governance and firm performance (FP). The more reliable information the stakeholders can obtain about FP, the stronger investor decision-making ability is, and the more efficient the allocation of assets becomes. Also, the authorities in Egypt could use this thesis as empirical support for the effect of the Revolution on ownership-structure types, corporate governance and firm performance. This thesis indicates that consistent with the CG variables and the Egyptian Stock Market, authorities can also employ its results to enhance the current disclosure of CG practices and the CG annual reports to support future empirical studies. An interesting implication of these findings is their usefulness for researchers investigating how the Revolution affected ownership structure of the Egyptian firms. Also, these findings give firms a clear view of their practical implications and show the importance of the types of ownership structure for CG. Managerial ownership has to cope with market discipline and achieve firm interests that aligned with those of their shareholders. Other than fulfilling this requirement, the board of directors (BOD) has to work effectively, accurately and independently with its decision-making process, using the members' experience and skills to carry out its duties of generating profitability and ensuring the company's sustainability after the Revolution, while covering any negative or bad effects. Privatisation is one way to avoid the mismanagement that occurred before and during the Revolution and to manage at lower cost, benefit from managerial skills and knowledge and provide funding and resources. Some companies that the Revolution affected could need long-term funds and facilitated access to government-supported financial resources supported to deal with poor investor protection, coping with external uncertainties, having guarantees to secure debt financing, increasing shareholder protection and efficiently utilising resources. Government ownership achieved all these goals.

This could help the Egyptian authorities update the corporate-governance code, create enterprise value, deepen capital markets, mobilise savings, increase foreign investment, raise investment rates and increase inflows needed for the Egyptian economy.

6.6 Future Research and Limitations

The results and discussion include some highlights that represent limitations of the thesis, which could also indicate opportunities for future research. First, doing cross-country studies among the Arab countries would be interesting, particularly investigating the association between ownership-structure variables, corporate-governance variables and firm performance in light of revolutions in the area. This would shed further light on the factors affecting firm performance. Equally interesting would be future research that considers attributes of CG affecting FP, other than board characteristics; for instance, legal environments, protection of minority-stockholder rights, disclosure and corporate transparency. Third, this thesis intended to examine the economic effects of the Revolution and suggest possible avenues for future research in this area. The researcher encourages a study of the impact of the political effects of the Egyptian Revolution. Fourth, carrying out an investigation with a more extended sample that could provide a better understanding of the interplay among these variables would be worthwhile. Fifth, the author suggests an in-depth comparative study between the USA, the UK, and Arab countries, to determine any differences among them, in terms of the effect of ownership, corporate governance and revolution on firm performance. Sixth, the author suggests an in-depth comparative study between listed and unlisted firms, in terms of their corporate-governance applications and the effect on their performance. Finally, in terms of board characteristics, the researcher suggests a study of gender diversity to discover its effect on Egyptian firms' performance, especially after the Revolution, and how its significance increased and explain its effect and importance. Despite the careful preparation that went into the drafting of this thesis, it retains a number of limitations. Some of these are enumerated below.

1. Data Collection

The thesis excludes Egyptian financial and utility firms. The financial statements of financial firms are prepared according to different reporting standards. In addition, their high leverage may lead to financial distress. Utility firms were excluded because they are characterised by long-term debt, more fixed assets, lower retained earnings and high dividend payout ratios, as well as a different capital structure from that of non-financial corporations. CEO tenure was removed, as those data were unavailable.

2. Time Period

The data included in the analysis span the period from 2008 to 2017. To obtain the most comprehensive data and the most accurate results, the period of the financial crisis was excluded. The time period does not include before 2008 to be assured that the Egyptian corporate governance code is applied in the Egyptian firms.

3. Reliability

The data collected in this research included only secondary data. Primary data was not used – an important factor to consider when assessing the reliability of this study's conclusions.

6.7 Thesis Conclusion

The thesis contains different chapters with different parts of the topic as the introduction, overview of corporate governance, corporate governance developments in Egypt and Egyptian Revolution, theoretical literature review, empirical literature review and hypotheses development for ownership structure types and corporate governance variables, research design, empirical analysis and finally the contributions discussion and conclusions. The last chapter includes summary of research objectives and hypotheses, research philosophy and methodology, empirical results and contribution discussion, thesis implications and future research and limitations to help other researcher to implement future researches and more contributions.

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Appendix A. Laws governing the legal framework that impacts CG in Egypt

CG Code	Capital Market Law (CML 95/1992)		Investment Law (IL 8/1997)		Central Depository Law (CDL 93/2000)	
General Assembly	Article (6)	One month before the general assembly meeting, the company should notify the authority with balance sheet, other financial statements, BOD reports and company's auditor report.			Article 10	BOD's approval is needed to let any board member or company's employee deal in securities
					Article 16	The BOD shall establish a system to guarantee the fulfillment of Central Depository members of their financial obligations about securities transactions
Board of Directors (BOD)	Article (17)	Transactions of unlisted securities should be announced in the stock exchange according to the rules specified by the Authority's Board of Directors decision.	Article 14 and 16	The BOD of a joint stock company shall form assistant administrative committee to be constituted from the employees. It should be attended by the managing director or member of BOD	Article 22	Central Depository member shall sign a written agreement with the company to remain its decisions of BOD of the company regarding its services and to share loss incurred by the company as set by the BOD rules approved by the Capital Market Authority

	Article (28)	The Authority Board of Directors shall establish the Licensing Format and Registry Data.	Article 29	The BOD shall be concerned with implementing the provisions of this Law, and its executive regulations	Article 23	BOD shall adopt all the rules for those who violate the company's rules
	Article (29)	Companies' Managers should have the experience and technical qualifications to conduct the business as specified by the Authority Board of Directors' decree to get the license			Article 25	The company shall create a certificate to replace the securities certificate for purposes of attending the general assembly according to the provisions and procedures required by this law
		Any of the founders, managers, and board members of the company should not have been convicted, during the past five years prior to the license request, in any misdemeanor or felony related to honor or integrity, or in any of the crimes specified by the provisions of company and commercial laws, and in adjudication of			Article 38	A central depository members group is responsible to coordinate the voting at a general assembly or BOD meeting

		bankruptcy, unless such a person has been rehabilitated.				
Internal/ External/ Audit Committee	Article (5)	Past 3 years audited financial statements should be compared with the disclosure rules provided by the authority.			Article 43	The company shall observe and appoint external audit to evaluate the financial control system of the company
	Article (6)	The company's financial statements should be compared with the GAAS or by the Executive Regulations.			Article 45	The Internal audit shall be done by two auditors as set by the Capital Market Authority
Disclosure of Social Policies	Article (4)	They have to publish information like the purpose of the company, characteristics of the shares being offered, board members names, directors and officers, each shareholder's name and ownership per cent owning more than 5% of the company's shares	Article 18	The assistant administrative committee shall prepare an annual report within 3 months of the end of fiscal year of the company and submit it to the BOD		
	Article (5)	Past 3 years audited financial statements				

	Article (6)	Semi-annual activity and progress reports revealing its actual financial position and annual financial statements Every company should disclose immediately any contingent fundamental conditions which would affect its business or financial position				
Avoiding Conflict of Interest	Article (31)	The Authority's Board of Directors may take an action if in an emerging danger will affect the capital market stability, or the company's shareholders interest, or the interest of the people who are dealing with a company			Article 29	The company shall complete the security registration and to the issuers inquiries and other parties interests